Language Maintenance, Shift and Variation

Evidence from Jordanian and Palestinian Immigrants in Christchurch New Zealand

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Abstract

There has been a substantial amount of research on language maintenance and shift (LMLS) and language variation and change (LVC) in New Zealand in the last four decades and most of this research has concentrated on exploring LMLS separately from LVC. Most researchers deal with these two topics as two different fields. For example, if they study LMLS (e.g., proficiency, domains and attitudes), they don't focus on the speaker's production of a language (e.g., vowels and consonants) within the same thesis. This thesis combined both LMLS and LVC in one thesis by employing questionnaires which were gathered from 99 Arab Jordanians and Palestinians to answer three research questions related to LMLS. The first research question related to reported language proficiency and the influence of generation (1st, 1.5 and 2nd) and length of residence (1-10 years, 11-20 years and 21-30 years) on that. The second research question looked at language use in different domains (e.g., home, friendship and religion) and the influence of generation and length of residence on that. The third research question examined the participants' attitudes towards both Arabic and English languages in general and New Zealand English (NZE) in particular and cultures and the influence of generation and length of residence on that. 20 of the survey participants who expressed willingness to be interviewed, subsequently participated in recorded interviews, which were used to investigate the realisation of particular consonants (ING and intervocalic /t/ and NZE short front vowels (KIT, DRESS and TRAP) in the speech of Jordanians and Palestinians in Christchurch New Zealand. The interviews aimed to answer four research questions. Two research questions related to the consonants (whether social factors influence the production of these two consonants and whether attitudes collected by questionnaire predict any of the linguistic behavior), and two questions related to the vowels (whether social factors and lexical frequency influence the production of these three vowels, and whether attitudes collected by questionnaires predict any of the linguistic behavior for these vowels).

By combining work in language maintenance and shift with work in language variation and change, this thesis aimed to reveal patterns which could be masked when each question was investigated separately. This is because LMLS and LVC are both driven in part by attitudes. I linked speakers' attitudes in the questionnaires to their linguistic behavior and examined the influence attitudes have on the production of the variables ING, intervocalic /t/, KIT, DRESS and TRAP. The interviews also provide some explanations for the attitudinal significant correlations

found in the questionnaire and in their productions of the five variables examined. Principal component analysis (PCA) was used to find underlying attitudinal categories from the answers and build up an attitudinal index score for each speaker. The scores were used to evaluate the attitudes of one speaker compared to another toward Arabic language and culture and English language and New Zealand culture.

The results for the LMLS part of the study showed that there is a gradual language shift in all domains (e.g., home, friends and religion), most sharply in the friends domain, then religion and finally home domain among 1.5 and 2nd generations and 11-20 and 21-30 length of residence. In addition, clear regression in Arabic literacy skills among 1.5 and 2nd generations and those who have been in NZ between 11-20 years was found. However, the attitudinal results showed that Arabic Jordanians and Palestinians in Christchurch are very loyal and positive towards their ethnic language because it is intertwined with their Islamic religion and culture. They also showed positive attitudes towards English in general and New Zealand English (NZE) and culture in particular, due to its perceived usefulness as well as its status in the world.

The LVC part of the study used mixed effects logistic regression modelling to analyse the influence of different factors on the production of ING and intervocalic /t/. The study identified three possible variants for the ING variable in the Jordanians and Palestinians speech of English [ɪŋ], [ɪn] and [ɪŋg]. The variable ING patterns were similar to NZE in the production of the younger generations (2nd and 1.5). However, the older generation (1st generation) showed a mixture between prototypical NZE patterns and typical Jordanian Arabic realisations. The 1st generation was likely not to have completely acquired the NZE variants of the variable ING. Female speakers were more likely to produce more native-like ING features than males. Length of residence was also significant, with those who have been living in New Zealand between 11 to 20 years producing more NZE variants than other groups. Occupation also played a role, with 'in-work' speakers using more NZE variants than 'not in-work' speakers. The analysis showed that there was a significant positive correlation between Principal Component (PC2) (attitudes toward English) and the production of the NZE variants of ING. The results are discussed in light of positive vs negative attitudes, instrumental vs integrative attitudes and identity.

For intervocalic /t/ three possible variants were identified across Jordanian and Palestinian speakers in Christchurch (CANONICAL /t/, FLAP and GLOTTAL STOP) and social factors were found to play a significant role. For example 2nd generation participants produced the most FLAP and

GLOTTAL STOP realisations, those who have been living in the country from 11-20 and 21-30 years were found to produce the most FLAP, while 1st generation participants and those who have been living in NZ from 1-10 years produced significantly more CANONICAL /t/. Attitudes were not found to have any significant bearing on the production of the intervocalic /t/ variants.

The other three linguistic variables investigated in the thesis were the three NZE short front vowels KIT, DRESS and TRAP, where I tried to determine if the speakers had adopted the shift happening in these three NZE vowels and investigated the effect of social variables such as generation, gender, word frequency and attitude on the speaker's production of these vowels. A mixed effects model was used to analyse the influence of these factors on the vowels. The results showed that the social factors: generation, attitudes, word frequency and gender were significant factors affecting Jordanian speakers' production of the three NZE short front vowels. Significant differences were found for DRESS F1, TRAP F1, TRAP F2, KIT F1 and KIT F2. The results also provide evidence for vowel shift in L2 speakers for the three NZE short vowels (KIT, DRESS and TRAP), particularly among 1st and 1.5 generations more than the 2nd generations. Attitudes were significant with DRESS F1, TRAP F2 and KIT F2 and discussed deeply in the thesis. Finally, the qualitative attitudinal results in the interviews offered some explanations for the consonant and the vowel results and matched them to the linguistic behavior (production of the vowels and consonants).

Overall, the results provided evidence that attitudes can link both LMLS and LVC and that the quantitative attitudinal results from the questionnaire likely match with the qualitative attitudinal results from the interviews and all are likely to predict linguistic behavior. The findings also suggest that the role attitudes play in LMLS and LVC can be very complex.

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List of phonetic symbols used in the thesis

IPA	Arabic letter(s)	Description	Arabic example	English meaning
ʔ	ء	Voiceless glottal stop	/ʔsəd/	Lion
Θ	ث	Voiceless dental fricative	/θəwm/	Garlic
Ħ	ح	Voiceless pharyngeal fricative	/ ħæris/	Guard
X	خ	Voiceless velar fricative	/ Xəw X/	Peach
Ð	ذ	Voiced interdental fricative	/ Ðælikə/	That
$s^ʕ$	ص	Voiceless emphatic alveolar fricative	/$s^ʕ$əwm/	Fasting
$d^ʕ$	ض	Voiced emphatic dental stop	/Did/	Against
$t^ʕ$	ط	Voiceless emphatic dental stop	/ $t^ʕ$a:lib/	Student
$ð^ʕ$	ظ	Voiced velarized dental fricative	/Dha:lim/	Oppressor
ʕ	ع	Voiced pharyngeal fricative	/ʕinəb/	Grapes
Ɣ	غ	Voiced uvular fricative	/Ɣəsi:l/	Laundry
D	ض	Voiced emphatic dental stop	/Did/	Against
Dh	ظ	Voiced velarized dental fricative	/Dha:lim/	Oppressor
dʒ	ج	Voiced palatal affricate	/ dʒ abal/	Mountain
Q	ق	Voiceless uvular stop	/Qələm/	Pen

List of Abbreviations used in the thesis

LM: Language Maintenance

LS: Language Shift

LMLS: Language Maintenance and Language Shift

LVC: Language Variation and Change

PCA: Principal Component Analysis

PC1: Principal Component 1 = Attitudes towards Arabic and Culture

PC2: Principal Component 2 = Attitudes towards English Language, New Zealand English and Culture

NNing: Non-native ING = [ɪŋg]

Ning: Native ING = [ɪŋ] and [ɪn]

NZE: New Zealand English

NZ: New Zealand

NNS: Non-native speakers of English

NS: Native speaker of English

L1: First Language

L2: Second Language

SLA: Second Language Acquisition

MSA: Modern Standard Arabic

SA: Standard Arabic

QA: Colloquial Arabic

UC: University of Canterbury

Dedication

This thesis is dedicated to *my Lord* 'Allah', my parents, my wife Maha, my children Ahmad, Lara and Munther, my brothers, my sister and to all Muslim Martyrs of the 15th of March New Zealand terrorist attack.

Chapter 1: Introduction

1.1 Contextual Background

Jordanian and Palestinian immigrants to New Zealand will determine the future of their Arabic heritage language, so it is important to gain an in-depth understanding of their engagement with this issue. While there has been previous research on Arabic immigrants' attitudes to language maintenance and language shift in New Zealand, none has focused specifically on how they link in with language variation and change. Furthermore, as research focussing on language maintenance and language shift has been particularly prominent in the last four decades in New Zealand, it is important to build on previous work and expand scholarly knowledge of this field by conducting research such as this.

Research on immigrant languages, mainly in the field of language maintenance and shift (LMLS), has grown in New Zealand in the last four decades and a number of communities have been the focus of research, including , Samoan (see Fairbairn-Dunlop, 1984), Tongan (see Aipolo & Holmes, 1990), Chinese (see Clyne & Kipp, 1999), Tongan, Greek, and Chinese (see Holmes, Roberts, Verivaki, & Aipolo, 1993), Korean (see Kim & Starks, 2010), and Ethiopians and Colombians (see Revis, 2015). Despite the growing influx of refugees and immigrants from Arabic-speaking regions, Arabic communities have not received much attention yet. Two scholars have investigated this issue across Arabic immigrants. Al-Sahafi (2010) studied LMLS among Arab Muslims in New Zealand, mainly in Auckland. His study did not look at a particular Arabic community, i.e. specific nationality, but treated all the investigated participants from different Arabic countries similarly. His data were collected through semi-structured interviews and through observation and analysed qualitatively. Tawalbeh (2017) studied LMLS and attitudes among Iraqis in Wellington. The analysis in his thesis focused on the two largest Iraqi ethnic groups in Wellington: the Muslim Iraqi Arabs and the Christian Assyrians, and his data were collected through questionnaires, interviews, family recordings and observations.

Research on New Zealand English, particularly in the field of language variation and change (LVC), has also grown in New Zealand in the last four decades and a number of communities have been the focus of research, such as Māori (see Bell, 2000; Benton, 1991; Schmied, 2008), Pākehā/ New Zealanders (see Bauer & Holmes, 1996; Docherty, Hay, & Walker, 2006; Holmes, 1995a, 1995b) Korean and German (see Gnevsheva, 2015). Again, Arabic communities have received remarkably little attention despite the growing influx of refugees and immigrants from

this region. Two scholars have investigated this issue across Arabic immigrants: Za'rour (2018) studied the acquisition of ING variation and Coronal Stop Deletion (CSD) by Arab migrants in Wellington, and Alshboul (2018) studied the production of some NZE consonants and vowels of Jordanian speakers of different generations in Christchurch.

Two of the largest Arabic communities in New Zealand's South Island that have not been the focus of LMLS research so far are the Jordanian and Palestinian communities. These two communities present an interesting case for the study of both LMLS and LVC (see section 1.5). My interest in this topic was informed by the current gap in combining LMLS with LVC in sociolinguistics and my personal academic interest in immigrants' LMLS (see Tawalbeh, Dagamseh, & Al-Matrafi, 2013).

This study has many objectives: First, to gather and analyse quantitative data on language proficiency, language use and attitudes. Second, to determine whether high level of language proficiency, language use and attitudes are associated with generation, gender and length of residence. Third, to conduct qualitative interviews in English to examine some New Zealand English sounds produced by the Jordanian speakers, mainly the two consonants ING and intervocalic /t/ and the three NZE short front vowels KIT, DRESS and TRAP, to check if the NZE vowel and consonant systems are produced among the Jordanian speakers. Fourth, to investigate whether there is a link between the attitudinal quantitative results in the questionnaire and the production of these phonetic variables in order to check whether a speaker's quantitative attitudinal results predict the speaker's linguistic behaviour. Fifth, to draw on the qualitative attitudinal information from the interviews in the interpretation of linguistic changes. Finally, to show how LMLS and LVC will miss patterns if they are investigated separately which I can see when they are combined.

For achieving the objectives, the data were collected through structured questionnaires and semi-structured interviews with members of the Arabic Jordanian and Palestinian communities in Christchurch, New Zealand, who were over 18 years old at the time of the study. In the LMLS research, I investigated Jordanians' reported language proficiency in both Arabic and English. I collected information about the use of Arabic and English in different domains, including home, friendship and religion domains, and investigated how these domains influence Arabic language maintenance and shift. I examined how attitudes towards Arabic and English influence language use choices and how demographic factors affect the participants' language proficiency, language use and attitudes.

Qualitative interviews were also conducted for the purpose of investigating the speakers' English language production. The variables under investigation were extracted using LaBB-CAT[1] which is a web-browser-based research tool, which stores recordings and transcripts together (Fromont & Hay, 2012). The main variants were determined auditorially for the consonants and acoustically for the vowels, and finally the variants were analysed using R[2] (R Core Team, 2018). I used qualitative attitudinal information from the interviews to explain significant attitudinal results and as a potential factor for interpreting linguistic changes by focusing on different themes such as positive or negative attitudes, instrumental or integrative attitudes and identity (see section 2.9 and 5.3 for further discussion).

I gathered quantitative attitude information from 99 participants and used multi-item five-point Likert scales to examine various aspects of participants' attitudes towards Arabic and their spoken English. If participants rate New Zealand English, culture, identity and accent highly, they are expressing more positive attitudes towards this language and would therefore be highly expected to use the NZE features in their speech. Since New Zealand English normally uses [iŋ, in], FLAP and GLOTTAL STOP, raised TRAP, raised DRESS and centralized KIT, I expect to find that participants who evaluated the New Zealand English, identity and culture positively would also produce the [iŋ, in] (here after Ning), FLAP, GLOTTAL STOP, raised DRESS, raised TRAP and centralized KIT variants of these variables more often. Quantitative attitudinal scores were measured using principal component analysis (hereafter PCA) and I checked whether these scores predicted the speakers' linguistic behaviour in the qualitative interviews, using both mixed effects logistic regression models for consonants and mixed effects model for all vowels investigated. I propose that this gives a good clue as an independent measure of an interaction between attitudes and production.

I argue in this thesis for the importance of linking and studying both LMLS and LVC simultaneously because we will miss important patterns when we consider them separately. LMLS focuses on the status of the heritage language and the dominant language among immigrants in their host countries and their attitudes toward them. LVC, on the other hand, examines the patterns of variation these immigrants produce when speaking both the heritage

[1] It can be downloaded from http://labbcat.sourceforge.net/

[2] It can be downloaded from url http //www.r-project.org/

and the dominant languages and the effect of their attitudes on the production of these two languages.

Immigrants, particularly those who are not native speakers of English, have the option to maintain their heritage language or acquire the variety of the host country and this might be a result of two different but related processes: language acquisition and language shift. Language shift happens when migrants gradually stop using their L1 and accommodate to the second language norms (Jaspaert & Kroon, 1993). The acquisition of variation is complex and would certainly affect the patterns of acquisition of variation among NNS of the English language. In contact situations NNS may show similar tendencies in the acquisition of variation, as acquisition of variation is influenced by belonging and social networking and by migrants' attitudes towards the host country and its language (Schleef, Meyerhoff, & Clark, 2011).

Albirini (2014) says immigrant speakers are bilinguals who usually come from ethnic minority backgrounds. They speak their parents' language in the early stages of their lives and then shift to the dominant language. This language shift interrupts their L1 development and often results in imperfect acquisition of different aspects of L1. Moreover, because they generally become more dependent on the second, dominant language, L1 use will be limited to specific domains (e.g., home), and different features of their L1 are attrited or lost. Ultimately, the L1 language becomes the less-used language for many heritage speakers. Heritage speakers show distinct variability in their language abilities, ranging from native-like to simple, as they move into adulthood, and the varying proficiencies of L1 are often related to different external factors, such as opportunities for interaction and use, demographic influences, and affective aspects (Albirini, 2014).

In LMLS, domains such as home, friendship and religion are recognised as playing an important role in influencing immigrants' patterns of language use and choice (Holmes, 2001). At the same time, domains are also very important in language production, and existing studies have shown that settings such as home, university and workplace affect the way and the style of speech that immigrants use. Gnevsheva (2015) found that L1 Korean and German speakers sounded more native-like in the service settings than in the home and university settings, which suggests that the speakers were accommodating to the native speaker audience. She also found that her speakers use more non-native NZE forms at home than in the university and service encounters.

Language proficiency is another important factor which affects the process of LMLS, and it is known that those who are proficient in their heritage language tend to use it more than those who are not and this will help their children to maintain it. At the same time in LVC, the proficiency of the immigrants in the dominant language and their frequent use of it affects their acquisition and production of the heritage language (Albirini, 2014).

Attitudes of the speakers are considered a very important influence on the process of LMLS. It is known that those people who show positive attitudes towards their heritage language tend to maintain it, use it and perceive it as a core value, a key part of their identity and their culture. And those who show positive attitudes towards the host language tend to use it and see it as part of their identity. At the same time, in LVC, it is known that those who show positive attitudes towards the dominant language will produce native-like variants of that language (e.g., NZE variants). Spolsky (1969) has confirmed the idea that attitudes are one of the significant aspects determining the degree of proficiency a learner achieves in learning a second language. Attitudes are considered to be a main determinant of behaviour.

In my study, I argue for the importance of linking and studying both LMLS and LVC simultaneously to avoid missing important patterns. When they are combined, we gain a more comprehensive understanding of the various aspects of language use. When you know your participants' proficiency in both languages, the domains they use both languages in, and their attitudes towards them, this will give you a clearer picture of the different speech styles they have access to and the factors influencing their production of both the heritage and the dominant languages. In my study, I have analysed my participants' language proficiency, investigated the domains of language use and analysed their attitudes towards both languages. I have combined both LMLS and LVC through my analysis of attitudes. This is because I believe it is attitudes that link LMLS and LVC together more than other factors. Moreover, my survey contained comparatively few questions on language proficiency and domains (8 and 12, respectively), and Principal Component Analysis (PCA) works better with more questions. In addition, the scope of the thesis would have become too big if I had included other factors, so I am focusing only on attitudes and arguing the importance of considering a wider range of factors in future studies.

1.2 Rationale of the study

As mentioned above, there has been a paucity of research on LMLS and LVC among Arabic in NZ communities in general, and Jordanians and Palestinians specifically. Therefore, this study

is an attempt to expand beyond the current literature Al-Sahafi (2010); Tawalbeh (2017); Za'rour (2018) and Alshboul (2018) and contribute to having a better understanding of the interaction between LMLS and the speaker's productions of some New Zealand English sounds. The research is particularly relevant with the increasing numbers of Arabic-speaking migrants entering New Zealand. The immigration levels of the Arab minority groups have increased quite significantly between 1990- 2013 (Statistics New Zealand, 2013). The main motivation behind this research is to offer insights into the linguistic situation of two specific minority groups (Jordanian and Palestinian) in Christchurch, in terms of language use, language attitude, and variation.

The present study can be justified on the following grounds. First, the shortage of research on the Arabic language as a New Zealand minority group language. The Arabic-New Zealand communities have hardly been studied sociolinguistically comparing with North America (Dweik, 1980; Sawaie & Fishman, 1985; Seymour-Jorn, 2004), United Kingdom (G. Ferguson, 2013; Gomaa, 2011; Othman, 2011) and Australia (Anikó Hatoss, 2013; Aniko Hatoss & Sheely, 2009). This study will therefore fill an important gap in ethnic literature. Second, these communities (Jordanian & Palestinian) were largely ignored in existing studies of ethnic groups in Christchurch and other parts of New Zealand, because consideration was typically given to bigger ethnic groups that constituted the population of the area i.e. Iraqi in Wellington. Third, this study is also the first of its kind to combine work on language maintenance and shift with work on language variation and change in New Zealand English using quantitative and qualitative methodologies.

What also motivated me to conduct research such as this is the hope that my findings will be of value to more recent arrivals from Arab countries who are questioning the future of their children's heritage language. It will provide the Arabic Jordanian and Palestinian communities with the most important data regarding the state of their Arabic language and offers them recommendations that will help them in maintaining their language. The results will be disseminated to both communities and to Arabs in general by printing out leaflets and distributing them to Arabs in the mosque. That will help the community to understand and be able to benefit from them. It is hoped that this thesis will be the starting point for other research projects about language maintenance, shift and language variation within the other Arabic as well as non-Arabic communities in New Zealand. Future studies should be able to draw on this study in order to provide a complete assessment of the state of Arabic as a minority language

in New Zealand. In addition, this study will hopefully form an initial foundation for a long-term research program to integrate language maintenance and shift with speech production.

1.3 Hypotheses of the study

The study explores seven hypotheses concerning Arabic language maintenance and the use and production of English among the Arabic Jordanian and Palestinian Communities of Christchurch/ New Zealand.

1. The Arabic Jordanian Community will display heritage language maintenance, though the use of Arabic will be limited to very narrow domains such as the family and religion.

2. Social variables such as generation and length of residence (hereafter LoR) will affect the choice of language of the Jordanians and Palestinians living in Christchurch. The highest degree of Arabic language use will be found among the 1st generation and 1-10 year LoR group, while 1.5 and 2nd generations and 11-20 and 21-30 years LoR groups will show a stronger tendency towards shifting to English.

3. The 1st generation Arabic Jordanian and Palestinian Communities will show integrative[3] attitudes towards Arabic and instrumental attitudes[4] towards English. Those who came to New Zealand at an earlier age (1.5 and 2nd generations), on the other hand, will show integrative attitudes towards English and instrumental attitudes towards Arabic.

4. As the Arabic Jordanian Community feels that their language is of less importance as a means through which they may earn their living, they will evaluate the English language as more important than Arabic.

5. First generation Arabic Jordanians will have stronger positive attitudes toward the use of Arabic and will exhibit a greater loyalty to Arabic cultural norms and identity (i.e. they will show cultural maintenance and Arabic identity) than the 1.5 and 2nd generation.

6. Social demographic factors, such as *generation, LoR, occupation and gender* will affect the production of the consonants ING and intervocalic /t/ and the short front vowels KIT, DRESS,

[3] "an integrative attitude to a particular language may concern attachment to, or identification with a language group and their cultural activities" (C. Baker, 1992, p. 32).

[4] An instrumental attitude is characterised by "a desire to gain social recognition or economic advantages through knowledge of a […] language" (Gardner & Lambert, 1972, p. 14).

and TRAP across Jordanian and Palestinian speakers. Moreover, *lexical frequency* will affect the production of these vowels.

7. The qualitative attitudinal information will match the quantitative attitudinal scores and attitudes will predict the speaker's linguistic behavior.

1.4 Arab communities in New Zealand and in Christchurch

According to the 2013 census, there are 10746 Arabic migrants who reside in New Zealand, with the majority living in Auckland (Statistics New Zealand, 2013). Arab immigrants represent a comparatively recent immigrant minority group in New Zealand whose numbers increased noticeably during the 1990s (Al-Sahafi, 2015). According to Al-Sahafi (2015) the main reasons for Arab immigration to New Zealand over the past series of years include the Arab-Israeli conflict, the first Gulf War (1990-1991), the 2003 attack of Iraq, as well as pull factors for immigration, such as search of a better life and joining other family members

The number of New Zealand residents born in countries of the Middle East rose from 7,347 in 2001 to 9,152 in 2006 and to 10,950 in 2013 (The Encyclopaedia of New Zealand, 2016). In addition, the number of New Zealand respondents who identified their identities as Arab rose from 2607 in 2006 to 2916 in 2013, and many others identified their ethnic group based on their country of origin such as Iraqi, Lebanese, Jordanian, Palestinian, Egyptian, Syrian, Tunisian, Algerian, Moroccan and Yemeni (The Encyclopaedia of New Zealand, 2016). The largest Arabic community group in New Zealand is the Iraqi community and it counted about 4095 members in 2006 and about 4080 in 2013 (The Encyclopaedia of New Zealand, 2016).

The Arab inhabitants of Christchurch are mainly Egyptian, Jordanian, Palestinian, Algerian, Assyrian, Kurd, Lebanese, Libyan, Moroccan, Omani, Syrian, Tunisian and Yemeni (Statistics New Zealand, 2013). There are about 648 Arabs who live in Christchurch today. The Egyptian community is considered to be the largest and was about 402 in 2006 (Statistics New Zealand, 2006), but had dropped to about 291 after the 2011 earthquake that hit the city (Statistics New Zealand, 2013). The second largest Arabic community in Christchurch is the Jordanian community, which consists of both Jordanians and Palestinians. Based on some unofficial calculations I have got through my networks, there are at least 50 – 60 Jordanian and Palestinian families in Christchurch, with the biggest number of families living in such areas as Fendalton, Ilam, Riccarton, Upper Riccarton, Addington and Avonhead.

Difficulties and political instability have encouraged many Jordanians and Palestinians to flee their country and migrate to other countries, including New Zealand. In New Zealand, Jordanians and Palestinians are faced with the challenge of maintaining their language, identity and culture. There is as yet no comprehensive research which explores LMLS processes and LVC among Jordanian and Palestinian immigrants in New Zealand generally and in Christchurch specifically. And there is as yet no comprehensive research which links LMLS and LVC in one study. This research seeks to fill this gap and provide a clearer picture of language use, attitudes and English language production among the Jordanians and Palestinians in Christchurch.

The reason why I have chosen Christchurch as the city for my research is that I am living and studying in Christchurch and this enabled me to socialise with the Jordanian and Palestinian communities, observing them indirectly for about four years as well as collecting data from them using carefully designed questionnaires and interviews. Jordanians and Palestinians are very connected to each other in this city, through regular family visits, social gatherings and gatherings on religious days (e.g., Ramadan and Eid). These migrants moved from their countries in search of a better future and life for themselves and their children. Most of them came as postgraduate students, immigrants and workers and reside in the city as neighbours to Native Speakers (NSs) of English (i.e. Kiwis). Therefore, Jordanians and Palestinians might be predisposed to imitate NS patterns and shift to English because they interact with NSs, visit each other, their children playing together, and women sitting together, without any social boundaries between them that would lead to divergence from NS norms. This continuous interaction with NSs in the dominant language of the host country (in this case, English) will lead to English language accommodation, Arabic language attrition and eventually language shift, especially across the young generations in different domains.

It is reasonable, therefore, to expect that the continuous interaction with NSs might affect their attitudes towards New Zealand, New Zealand culture, New Zealand identity, New Zealand English, belonging and social networking, all of which have been confirmed to be important social factors that influence both the acquisition of variation and LMLS (see Albirini, 2016; Schleef, Meyerhoff, & Clark, 2011; Tawalbeh, 2017).

1.5 Why Jordanians and Palestinians not others?

Jordan is an Arab kingdom in Western Asia on the East Bank of the Jordan River, and is bordered by Saudi Arabia, Iraq, Syria, and occupied Palestine. The population of Jordan is estimated at 10,046,074 million in 2019 (Worldometers, 2019). Palestine is a country in Western Asia between the Mediterranean Sea and the Jordan River, and is bordered by Lebanon, Syria, Jordan, Egypt and the occupied Palestine. Historically speaking, Jordan, referred to as the East bank, and Palestine, referred to as the West bank, were one country before being separated in 1988. The dialect spoken in Jordan is similar to that spoken in Palestine in spite of some small differences, such as the production of these phonemes in Arabic /Q, θ, dʒ /, which are produced by Jordanians as [g, θ, dʒ] and by Palestinians as [ʔ, t or s, ʒ] representatively (Al-Wer, 1999). The dialects of the Levant (Syria, Jordan, Lebanon and Palestine), share a large number of features at all linguistic levels. To outsiders, the urban dialects of the Levant are indistinguishable (Al-Wer, 2002).

Herin (2013) argues that "Jordanians and Palestinians speak more or less the same dialect" (p. 99). It is also argued that in some cities in Jordan, including the capital city Amman, more than 90% of the population has moved there during the last 50 years. For example, Al-Wer (2002) pointed out that the population of Amman comprises two major groups including the Jordanian, represented by those who lived in the city before 1948, and the Palestinians, represented by those who came to the city and became citizens as a result of the Arab-Israeli wars of 1948 and 1967. In addition to this, Al-Wer (2002) highlighted that contact between Palestinian and Jordanians is not new, as the people of the West and East banks of the Jordan River had social and trade contacts. Moreover, Al-Khatib (1988) pointed out, "if we take Jordanian citizenship as a criterion, all people who live in Jordan at present, be they of Jordanian or Palestinian origin, are considered Jordanian"(p. 56). So this study is carried out with both Jordanian and Palestinian speakers of Arabic, because the linguistic similarities outweigh the differences'.

As mentioned above, Arabic Jordanian and Palestinian communities are the second largest Arabic community in Christchurch after the Arabic Egyptian Community. However, they are also selected as the focus of this study because the researcher is himself an Arab Jordanian who speaks Jordanian Arabic and is hence in a good position to understand the participants' background, culture and dialect. Such awareness was important to facilitate the study and speed up the process of researching. It is more practical for the researcher to access speakers who are part of the same community, culture and traditions. There will be more interaction with this

group of people when compared to other Arab nationalities, and so more field information will be gathered through informal observation. Another relevant point might be that the community is quite small compared to the Egyptian community in Christchurch and the Iraqi communities in Wellington and Auckland, so this allowed me to collect questionnaire data from every member of the community who was over 18 at the time of data collection. This is good and not everyone is able to do this. If I had focused on a larger community, I would have had to restrict my questionnaire survey to a sample, to keep the study manageable. The Arabic Jordanian and Palestinian communities in Christchurch are also composed of immigrants who do not differ in their religious backgrounds, for example all are Muslims share the same culture and speak the same language. Such similarities in the composition of the two populations encouraged me to combine them in my study. Therefore, from now then this study will deal with these two communities as one community, which I will refer to as Jordanians for short.

1.6 The New Zealand context

New Zealand is an island country in the south-western Pacific Ocean. The country geographically comprises two main landmasses, the North Island, and the South Island. Christchurch is the largest city in the South Island, and the third most-popular urban area behind Auckland and Wellington.

New Zealand is a multi-ethnic community and home to individuals of different national ancestries, most notably the indigenous Māori and people of European origin. In the 2013 census, 74.0% of New Zealand dwellers identified ethnically as European, and 14.9% as Māori (Statistics New Zealand, 2013). In addition to that, there are Asians, non-Māori Pacific Islanders, Middle Eastern, Latin American, African ethnicities, and other minor ethnicities (Statistics New Zealand, 2013). Linguistically and culturally New Zealand is considered a diverse country with immigrants from different parts of the world. It comprises people of multiple "national" identities and its population growth is largely a result of the immigration processes. More than half of the population live in the four largest cities of New Zealand which are Auckland, Christchurch, Wellington, and Hamilton (Statistics New Zealand, 2013). Auckland, the cosmopolitan city, is the most ethnically diverse city in the North Island, and Christchurch the most ethnically diverse in the South Island.

The most commonly spoken languages in New Zealand after English are Māori, Samoan, Hindi, Northern Chinese, French, and Yue (Cantonese) (Statistics New Zealand, 2013). According to

Statistics New Zealand (2013), there are more than 160 different languages spoken in New Zealand but most of them were identified with minority communities, involving less than 1,000 speakers. The five largest ethnic groups are New Zealand European, Māori , Chinese, Samoan, and Indian, and the smallest ethnic groups include Greenlander, Sardinian, and Latin American Creole (Statistics New Zealand, 2013). There are more English speakers than speakers of any other language. There are about 3,819,969 English language speakers which make up about 90% of the total population in New Zealand, and English is ranked number one among the top 25 languages in New Zealand. Māori numbers about 148,395 speakers and is ranked second at 3% of the total population. Samoan, with 86,403 speakers is ranked third (2%), and Hindi with 66,309 speakers comes in fourth (2%). The Arabic language is ranked twentieth among the top 25 languages, used by about 1% of the total population which is about 10746 (Statistics New Zealand, 2013).

New Zealand has changed from being mainly a monolingual to a bilingual and then multilingual society (Ward & Liu, 2012). English is the predominant language in New Zealand, although the indigenous language Māori is the official language, beside the New Zealand Sign Language, and there are a wide range of migrant languages at the country's disposal. There are more ethnicities in New Zealand than there are countries in the world, which means that New Zealand is a diverse country and getting more so all the time (Minson, 2013). A lot of migrants found that the host society responded negatively to hearing different languages, for instance Dutch, used in public (Kuiper, 2005). Migrants using their heritage language were regarded with suspicion because monolingual New Zealanders couldn't understand and consequently assumed that the speakers were talking about them (Crezee, 2012). It also does not help immigrant language maintenance that little or no instruction in ethnic languages is offered by New Zealand mainstream educational institutions for the purpose of preserving and developing immigrant children's mother tongue skills (Hulsen, De Bot, & Weltens, 2002).

Benton (1991) reported that Māori is used for some religious ceremonies, and in informal conversation at homes with older Māori who still speak the language. It can be heard in some pubs in Māori-speaking areas, on radio, television although the coverage is minimal and in court and Parliament. Holmes (1997b) pointed out that the linguistic repertoire of most Māori people doesn't include active control of Māori language, but a passive knowledge of Māori is more common.

1.7 Arabic language and diglossia

Arabic is the main language of the holy book of Islam, the Quran. Arabic is a Semitic language that is spoken natively by more than 200 million people in the Arab world, and it is used as a heritage language by many others in North America, Europe, Australia, and other parts of the world (Albirini, 2016). It is a second language for about 246 million people (J. Gordon, 2005). It is the official language of more than twenty countries of the Arab League, as well as the language of Islamic religion, used by millions of non-Arab Muslims who can read it but don't have oral fluency in it, and it is more than fourteen hundred years old (Albirini, 2016).

There are two varieties that characterise the Arabic sociolinguistic situation: Standard Arabic (SA) and Colloquial Arabic (QA). SA refers to the variety of Arabic that students study at schools, which has formal status throughout the Arab world and includes both Classical Arabic and Modern Standard Arabic (MSA). While QA refers to the dialects of Arabic that are used in everyday conversation by Arabic speakers in different regions but don't have formal status or standardized orthography (Albirini, 2016). While modern standard Arabic (MSA) is the official language of 20 Arab countries, each Arab country has its own dialect and all Arabic speaking children first acquire the dialectal variety as their mother tongue and are only later introduced to MSA through literacy (Badry, 2009). The coexistence of SA and QA is an example of diglossia. SA represents the 'High' variety, while QA represents the 'low' variety (C. Ferguson, 1959).

Arabic is different from many other languages in its diglossic nature. Diglossia in Arabic is the co-existence of two different language varieties in the same speech community, each of which is used for specific linguistic and communicative purposes by its speakers (C. Ferguson, 1959). C. Ferguson (1959) defined diglossia as:

> A relatively stable language situation in which, in addition to the primary dialects of the language (which may include a standard or regional standards), there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any sector of the community for ordinary conversation (p. 336).

In the situation of Arabic, SA is used in formal settings, reading and writing. QA is used in everyday speech in informal conversational settings by literate and illiterate people. QA does

not have a written form. It is used for communication between people in informal settings, such as families, friends and shopping. There are many varieties of QA and each regional variety symbolizes an exclusive culture and people. For example, the Spoken Arabic in Morocco differs from the Spoken Arabic in Jordan and the spoken Arabic in Lebanon is different from the spoken Arabic in Saudi Arabia. Besides, there are different dialects of Spoken Arabic in each country. For example, the *Budwin* dialect in Jordan is different from the *Fallahi* dialect and the *Fallahi* dialect is different from the *urban* dialect. J. C. Watson (2002) wrote "dialects of Arabic form a roughly continuous spectrum of variation, with the dialects spoken in the eastern and western extremes of the Arab-speaking world being mutually unintelligible"(p. 8).

Written Arabic is very different from spoken Arabic. Written Arabic is the language which is used in the literary oral and written settings. It is generally known as Modern Standard Arabic (MSA), which is related to the older Classical Arabic (CA). This language is the language of the Muslim's holy book, the Qur'an. SA is used in books, newspapers, on official occasions, and in the media, especially the news. MSA is used and understood throughout the whole Arab world. Children in the Arab world do not begin learning MSA until they begin their formal education at schools, which means that they find themselves learning it much like a foreign language. Ibrahim (1983) claimed that "standard Arabic is the learner's second language and should be treated as such" (p. 514). Arabic Jordanian and Palestinian communities in Christchurch are using both the Jordanian and Palestinian dialects of Arabic.

1.8 Bilingualism

Wei (2000) argues that a bilingual or a multilingual speaker uses different languages for different purposes, in different contexts, with various degrees of proficiency to interact with other speakers. John Edwards (2008) suggests that everyone is bilingual; that is, no one in this world does not know at least a few words in languages other than their mother tongue. Macnamara (1967) claims that having at least one of the four second language skills (reading, writing, listening, and speaking) can be considered as the minimum condition of bilingualism. In contrast, Mohanty (1994) restricts the meaning of bilingualism to its social-communicative dimension and says that "bilingual persons or communities are those with an ability to meet the communicative demands of the self and the society in their normal functioning in two or more languages in their interaction with the other speakers of any or all of these languages" (p. 34). This is arguably the most widely accepted definition, which I also follow in this study.

Most of the world's population is bilingual or multilingual, with monolingual speakers in the minority. New Zealand is thus uncommon in having such a large proportion of monolinguals - 83 per cent of New Zealanders claimed to speak only one language, and the vast majority of them (98 per cent) were English speakers (Starks, 2005). This generates challenges for immigrants and refugees who try to learn English to ease their integration while also preserving their heritage languages and transferring them to successive generations. Immigrant languages remain limited to private domains such as home and religion (Holmes, 2001; Starks, 2005). However, the country is now recognised as a multilingual country which is home to a unique mix of cultures and languages (Ward & Liu, 2012).

1.9 Thesis overview

This thesis has six chapters and is divided into two major parts. The two major parts are: language maintenance and shift, and language variation and change. Each chapter tackles the two parts at the same time. Part one of each chapter addresses LMLS issues, while part two addresses LVC issues. Chapter one provides the contextual background for the study. Chapter two highlights some theoretical aspects of LMLS and LVC, situates the research within the existing LMLS and LVC literature, and introduces the research questions. Chapter three introduces the methodology for the LMLS and LVC parts of the study. Chapter four presents the results of the quantitative analysis of the questionnaire survey and interview data. Chapter five is devoted to the discussion of the results for both the questionnaires and the interviews. Finally, chapter six presents a summary of the findings and the conclusions of this thesis. A chapter-by-chapter breakdown is presented below.

Chapter one is the introduction which has outlined the contextual background of the study, the rationale and the hypotheses of the research, a socio-historical overview of Arabs (mainly Jordanians and Palestinians), and the reasons behind choosing these two communities and the reasons behind their migration. It provides some information about the Arabic language and diglossia and bilingualism as well as about bilingualism and multilingualism in the New Zealand context.

Chapter two is the literature review which is divided into two broad parts. In the first part, I highlight some theoretical aspects of the first topic LMLS, by introducing this field and

providing some definitions. I present an overview of current developments in theories of LMLS, attitudes and domains, and discuss existing research on factors affecting LMLS, such as demographic factors, domains, attitudes and religion. I review some of the previous studies that examined the phenomenon of LMLS among a range of minority groups in different places around the world, and outline the LMLS-related research questions. The second part of the literature review introduces LVC. It presents the theoretical background of this field, before discussing the main variables investigated in this study: the ING variable, intervocalic /t/ and the vowels KIT, DRESS and TRAP. It provides the methodological framework by exploring some of the literature related to language variation and change, and gives some information and examples from the Arabic literature about the consonant and vowel differences between Arabic and English. The review also discusses the main factors affecting LVC, including language attitudes (e.g. instrumental vs. integrative), identity and frequency. The literature review concludes with the LVC–related research questions in the study.

Chapter 3 describes the methodology used in this study. This section consists of two parts. The first part discusses the questionnaire survey which was the first data collection technique used in the thesis, providing details about the design, piloting, translation, and distribution of the questionnaire, as well as a description of the sample. It also outlines the tools and tests used in analysing the questionnaire data, such as principal component analysis (PCA) and the Wilcoxon test. The second part of Chapter 3 discusses the interviews, which were the second data collection technique used in the thesis, providing information about the speakers in the study, the variables and the interview procedure. It also presents some tools used in collecting and analysing the data, such as ELAN and LaBB-CAT and introduces the 'ArabEng' corpus which I have built for the purposes of the study. I outline the auditory and the acoustic data analysis, the measuring of formant frequencies (F1 and F2) and the data coding for the consonants and the vowels, and I discuss the statistical techniques and tools used in the analysis of the consonants and vowels (i.e., mixed logistic model and mixed effects model).

Chapter 4 is about the data analysis and the results. Part one presents the LMLS quantitative analysis and the questionnaire results collected across the Jordanian community. It identifies general patterns in Jordanians' reported language proficiencies, use and attitudes. It also looks for any significant interactions between language proficiency, use, attitudes, generation, LoR and religion. The second part provides the quantitative analysis of the interview data for ING

and intervocalic /t/, and the three NZE short front vowels KIT, DRESS and TRAP. I first present the distribution of the ING variable data across the speakers, provide a descriptive analysis for the variants and present the statistical analysis and the results. I then I provide the distribution of the intervocalic /t/ data across speakers, provide a descriptive analysis of the variants, and present the statistical analysis for the three variants of the intervocalic /t/ (e.g., CANONICAL, FLAP and GLOTTAL STOP). Finally, I present the analysis of the three NZE short front vowels KIT, DRESS and TRAP, provide the productions of some speakers for these vowels across generations and genders, then present the statistical analysis and provide a brief discussion of the results.

Chapter five is the discussion and consists of two parts. The first part discusses the questionnaire results and provide the answers for the three research questions in LMLS. The second part discusses the results of the analysis of the two consonants and three NZE short front vowels KIT, DRESS and TRAP, and their correlations with the social factors. It provides the answers for the research questions for both the consonants and the vowels. It also offers a qualitative analysis of the attitudinal influences on the production of ING and the vowels and extracts information from the interviews to explain the attitude results and examine if they match and predict linguistic behavior. The speakers' linguistic behavior and quantitative attitudinal scores are also linked to their instrumental or integrative attitudes towards English. The chapter finishes with a discussion of the relationship between the significant attitudinal results for the variable ING and Identity (indexicality).

Chapter six summarises the main findings, contributions, and limitations of the study, discusses its theoretical and methodological implications, and recommends directions for future research.

Chapter 2: Theoretical background and literature review

2.1 Introduction to language maintenance and language shift (LMLS)

Language maintenance and language shift, as a specific field of inquiry, has been under investigation for about six decades and has been considered to be the result of language contact situations. Since the first publication of Fishman (1966) *Language Loyalty in the United States*, there has been a considerably large amount of research on the maintenance of languages and the language shift as a phenomenon of linguistic communication. Numerous studies have been conducted to examine the languages of ethnic minority groups in several places around the world, looking at ethnic language loyalty and attitudes of ethnic minorities towards languages.

Every society is shaped by its language and dialects, and there are some factors that make a community practice two or more languages (Spolsky, 1998). One of these factors is migration (either voluntary or involuntary) which generally contributes to interaction between speakers of different languages and, perhaps, language change (Spolsky, 1998). The members of the language group leave the region where the majority of the population speaks their language. They usually move to a part of the world where their language no longer serves them, and they adopt the language of the new region, such as immigrants to European and the United States' (Hoffmann, 1991). Migration generally contributes to language interaction and change (Fishman, 1989). Therefore, immigrants face many challenges as they try to decide whether to keep their heritage language dynamically in use, shift to the majority host language, or use their heritage language beside the majority official language of the host country. This trend is expected among my speakers as well, especially among the younger generations and those who have been in the country for a long time (for more information see section 4.1.2). In other words, when two languages are in interaction, the dominant language will replace the other language or the two languages will be used alongside each other in a diglossic connection (Fishman, 1989).

Moreover, if the immigrants are given genuine chances to take part in the social and economic mainstream of life in a host society, they will not only acquire the host language, but will also shift to the dominant language even in the relatively protected domain of the home (Fishman, 1971). In this regard, Thomason and Kaufman (2001) argued that "intense pressure from a dominant group most often leads to bilingualism among subordinate groups who speak other languages, and this asymmetrical bilingualism very often results, sooner or later, in language shift: most Native Americans in the United States, and most immigrant groups as well, have

shifted to English" (p. 9). And this is what I expect to find among my younger generations and those who have been in the country for a long time.

According to Fishman (1989), language shift can be completed by the third or fourth generation:

> What begins as the language of social and economic mobility ends, within three generations or so, as the language of the crib as well, even in democratic and pluralism-permitting contexts (p. 206).

Three important scholars have made particularly important contributions to our understanding of language maintenance and language shift in the field of sociolinguistics: Fishman (1966), Weinreich (1979) and Kloss (1971). Fishman (1966) was famous for shaping of the field of "language maintenance and language shift" and for his influence on sociolinguistics in general. Weinreich (1979) was interested in studying bilingualism and the difficulties arising from languages in contact. Kloss (1971) was known for his exploration of the aspects that define language maintenance and language shift in contact situations in the United States.

Fishman (1966) suggests three major topical subdivisions for this field: "(a) habitual language use at more than one point in time or space under conditions of intergroup contact; (b) antecedent, concurrent or consequent psychological, social and cultural processes and their relationship to stability or change in habitual language use; and (c) behaviour toward language in the contact setting, including directed maintenance or shift efforts". (p. 424)

In other words, Fishman's (1966) model is built on studying three parts, namely the domains of language use, the psychological, social and cultural factors that either support or obstruct the use of the minority language, and the attitudes and beliefs towards the tribal/indigenous language. Fishman (1989) argued that in minority societies, change to the majority language happens mostly within three generations. The parents of immigrants (first generation) are largely monolingual in the heritage language, while their children (second generation) are bilingual in the heritage and the majority language, and then their grandchildren (third generation) are mainly monolingual in the language of the majority group. Fishman (1989) proposed that cultural and linguistic change is unavoidable and expected. He stated that "language is both part of, indexical of, and symbolic of ethno-cultural behavior. As ethnicities meld, change or absorb and replace one another, it is inevitable that the languages of these ethnicities will be modified as well. Language change, per se, in the usual linguistic sense of alteration in "lexicon, semantics, syntax and phonology, is, of course, always ongoing, particularly between languages in contact" (p. 67).

In the same vein, Kloss (1971) suggested that an immigrant group would abandon its native cultural heritage, such as language, in order to be integrated into the host culture. Kloss (1966) mentioned six different factors that contribute to language maintenance among speech communities. These factors include (1) religio-societal insulation; (2) time of immigration: (3) existence of language islands; (4) affiliation with denominations fostering parochial schools; (5) pre-immigration experience with language maintenance efforts; and (6) former use. Kloss (1966) mentioned another nine ambiguous factors, which may either encourage or discourage to language maintenance, including (1) high educational level of immigrants; (2) low educational level of immigrants; (3) great numerical strength; (4) smallness of the group; (5) cultural and/or linguistic similarity to Anglo-Americans; (6) great cultural and/or linguistic dissimilarity between minority and majority; (7) suppression of minority tongue(s); (8) permissive attitude of the majority group; (9) and socio-cultural characteristics of the minority group in question. Factors 1 and 2 can be combined together into the educational level of the immigrants; factors 3 and 4 can be reduced to the numerical strength of the minority group; factors 5 and 6 refer to the degree of cultural and/or linguistic similarity/and difference between the majority and minority group; and factors 7 and 8 can be grouped together to refer to language policy of the majority group.

Weinreich (1979) stated that the linguistic features of the minority group can be affected by outside factors such as cultural or ethnic groups, religion, race, sex, age, geographic areas, indigenousness, social status, occupation and rural vs. urban population. Weinreich (1979) explained the relation between language loyalty and language shift, defining language loyalty as "a principle in the name of which people will rally themselves and their fellow speakers consciously and explicitly to resist changes in either the functions of their language or on the structure or vocabulary." (p. 99). Weinreich (1979) further added that some ethnic groups keep using their mother tongue because it represents "a symbol of group integrity" (p. 100).

According to Tuominen (1999), there are two groups of factors related to language shift among generations; the first one is related to the couples' decisions whether to shift the community language, while the second is associated with the success or failure of the effort. Some factors possibly influencing the decisions for or against language shift are the parents' attitudes towards the community language and its preservation, and their self-identification. However, some of the factors which may contribute to the success or failure of sustainable language shift in the family include the educational level, the linguistic environment, the socioeconomic status of

the family, and individual traits. In my study, I predict that most of the Jordanian families will have positive attitudes toward learning the heritage language beside the majority language.

Fillmore (2000) stated that there are internal and external aspects that cause the loss of the heritage language. The internal aspects include the desire for social acceptance to the dominant group, and the essentiality of interacting with those people. Whereas, the external aspects include the socio-political pressure which comes from the way in which the society approaches differences, divergence, and dislikes. In my study, I predict that most of Jordanians will show an interest in getting married to an Arab and display positive attitudes towards their heritage language, while at the same time showing a desire to learn the dominant language to be socially accepted.

2.2 Definitions of language Maintenance and Language Shift

Language maintenance refers to language-contact situations where a minority group carries on using its heritage language even under circumstances that support language shift. Hoffmann (1991) defined this term as "[It] refers to a situation where members of a community try to keep the language(s) they have always used, i.e. to retain the same patterns of language choice" (p. 185).

Furthermore, we can say that in spite of the pressure on the heritage language from a dominant linguistic group, the minority group is successful in preserving its heritage language. Veltman (1991) emphasized that "language maintenance is the practice of speaking one's mother tongue throughout one's lifetime as the only language in daily use" (p. 147). It can also refer to a situation where a minority group continues to master its heritage language in the face of a set of circumstances imposed on them by the majority host community that may encourage them to switching to another language. Thus, language maintenance is "the preservation of the use of a language by a speech community under conditions where there is a possibility of shift to another language" (C. Ferguson & Heath, 1980, p. 530).

Like other scholars, Fasold (1984) showed that language maintenance takes place when a community collectively agrees to continue speaking its language or languages, and he added that when a community abandons a language totally in favour of another one, the phenomenon of language shift appears. Weinreich (1974), on the other hand, defined language shift as "the change away from the habitual use of one language to that of another" (p. 68). He pointed out that the shift in language use is an indication of the dominance of one language over another.

In the same way, Hoffmann (1991) claimed that the term language maintenance describes the situation where a minority group tries to keep the language(s) they have always used, while language shift occurs when the community does not maintain its language, but gradually adopts another one. Hoffmann (1991) also distinguished two kinds of language shift: complete shift and incomplete shift. Complete shift includes a change from one kind of monolingualism to another, with just the transitional period marked by group bilingualism, while an incomplete shift occurs where members of a community maintain some degree of proficiency in the language because they use it in certain circumstances, such as in the religious domain, as the case with Hungarians who continue to use their language in religious worship. Moreover, incomplete shift might occur when a community retains the old language in addition to acquiring the new one, such as in Wales, where everyone speaks English but about one-fifth of the population can also communicate in Welsh (p. 186). Hoffmann (1991) points out that language shift is sometimes called language decline and language death. These two terms are used when the language is spoken by fewer and fewer people till it is no longer used by any member of the community, nor by any other member or group outside it, and the language vanishes or dies with its last speaker. In general, language shift is a process in which continuous generations of people, both at individual and at minority group levels, gradually lose proficiency in their heritage language in favour of other languages. This practice may result in language loss among individuals or even language death for the whole minority group.

In this thesis, I will follow Hoffmann's (1991) definitions of both language maintenance and language shift. I expect my participants to show incomplete shift and predict that the community will maintain the Arabic language in addition to acquiring the new dominant English language, with clear differences among the three generations and LoR.

2.3 Theories and approaches to the study of LMLS

A number of models have been proposed in the field of Language Maintenance and Language Shift among immigrant communities. Some of these models are: attitudes theory (Karan, 2011), which looks at attitudes and their influence on the process of LMLS; domain analysis theory (Fishman, 1966), which focuses on determining the domains where the majority/minority languages are used; ethnolinguistic vitality theory (Giles, Bourhis, & Taylor, 1977), which identifies a number of ethnolinguistic vitality factors that are claimed to encourage maintenance or shift; and core value theory (Smolicz, 1981), which deals with ethnic language use and ethnic

identities of minorities. In the following sections, I provide a review of these theories and their input to this study.

2.3.1 Attitudes

Sociolinguists have been examining attitudes to language since the 1960s, when Labov (1966) and Lambert, Hodgson, Gardner, and Fillenbaum (1960) used language attitudes to study other sociolinguistic phenomena. Garrett (2010) highlighted that attitudes are a psychological construct, and cannot be observed directly, so in order to study them one must infer information from their appearance. Psychologists generally distinguish two types of approaches when conducting attitude research: the *behaviourist* and the *mentalist* approaches. Both approaches argue that people are not born with attitudes but that they are taught, mainly during the period of socialisation, during childhood and puberty. In the behaviourist approach, attitudes are behaviours or responses to a given situation, and attitudes are often thought to directly influence behaviour (Perloff, 1993). By observing the way people respond to certain languages in social interaction, attitudes can be directly measured (Appel & Muysken, 1987). The behaviourist approach views attitudes as the only dependent variable (i.e., they assume that there is a perfect correlation between attitude and behaviour) and consequently, the sole determinant of the behaviour of an individual. However, the behaviourists believe that this approach has only one component *the affective component*, and the affective component cannot predict verbal conduct (Solís Obiols, 2002). other factors such as age, gender, language background and group membership of the individual may influence behaviour as well (McKenzie, 2007).

The mentalist approach, on the other hand, argues that attitudes are not directly observable but can only be derived from subjects' introspection. Therefore, researchers should rely upon the participants themselves to report their attitudes. Most attitude research has taken the mentalist approach (McKenzie, 2007). The mentalist approach has three elements of attitude formation: *the cognitive element* (thoughts and beliefs about the language), *the affective element* (feelings and emotions toward the attitudinal object), and *the conative element* (behaviours or individual's predisposition to behave in certain way) (John Edwards, 2002).

Albirini (2016) notes that these two theories on attitudes have produced disagreement about the best way to measure language attitudes empirically. For this reason, the following section outlines and discusses different methods that have been used in the measurement of language attitudes in existing studies.

2.3.1.1 The Measurement of Language Attitudes

A range of methods and techniques have been used in language attitude research since 1960s. Garrett (2010) mentions that methods and techniques and generally grouped into three broad types: the societal treatment approach, the direct approach, and the indirect approach.

2.3.1.1.1 The societal treatment approach

The researchers following this approach determine the attitudes of the individuals from their observed behaviour or through document analysis. Researchers infer attitudes by "analysing the content of various sources in the public domain, such as perspective (or proscriptive) texts, language policy documents, media texts, and various kinds of advertisements" (Garrett, 2010, p. 51). Garrett (2010) mentioned the importance of societal treatment studies for understanding a community's language attitudes. This could involve studying the linguistic landscape of a community, the presence of languages in the physical environment, in the form of road signs, street names, posters and signs in shops. It may be most suitable to use a societal treatment approach in contexts where access to participants under fully natural conditions is not possible, or where there are limitations on space/time. This approach may also be employed as an initial study for more rigorous sociolinguistic analyses which would involve the use of direct or indirect methods of data collection (Garrett, Coupland, & Williams, 2003). Examples of an approach which employs a societal treatment method to study language attitudes are (Haarmann, 1986, 1989), who investigates the use of foreign languages in advertising as signs of prestige in Japan; Schmied (1991) study of attitudes towards English in Africa by investigating letters to the editor in African newspapers; and Reh (2004) study of the linguistic landscape of Lira Town in Uganda, which investigated the use of English and the local dialect Lwo on signs.

2.3.1.1.2 The direct approach

Garrett (2010) described the direct approach as involving overt elicitation of attitudes through direct questions, where the respondents are aware of the purpose of the questions. The direct approach by its very nature is described as having a greater degree of obtrusiveness, because the participants themselves are expected to give an account of their attitudes and respond to questions about their feelings, beliefs and knowledge of the attitudinal object (McKenzie, 2007).

Henerson, Morris, and Fitz-Gibbon (1987) provide a detailed discussion of the advantages and disadvantages associated with the elicitation tools used in direct methods. Questionnaires give respondents a generous amount of time to consider their responses to the questions asked, allow anonymity, which raises the probability of the respondents' providing responses that honestly represent their attitudes, and can be posted/mailed or administered directly. However, using questionnaires does have some shortcomings, as respondents are generally more capable of expressing their views orally than in writing. Questionnaires also don't provide the flexibility found in the interviews and, as a result of this, respondents sometimes interpret questions differently and the validity of the data may be affected. Interviews are useful for getting responses from non-native speakers and those who have difficulty reading or writing, they provide flexibility and the interviewer can provide further explanations to ensure the informants understand the question, and they can be an excellent first stage in the study of complex issues in order to develop a questionnaire for wider distribution. However, interviews tend to be time consuming, and the interviewers may excessively influence the informants, leading them to modify their answers, which results in interviewer bias.

Direct methods often guide respondents to agree positively with the questions and to respond to the questions in a way that will be viewed as likable by others (Garrett, 2010). For the measurement of language attitudes by direct methods, the researcher should in the process of preparation of the interviews and questionnaires' questions be aware of the following issues: First, strongly slanted questions, which involve loaded items that tend to force respondents to answer in a specific way, e.g., political terms such as democratic or socialist, and terms such as black, free, healthy, natural, regular, unfaithful or modern (Oppenheim, 1992). Second, hypothetical questions focus on how the respondents would react or behave to specific questions. Third, multiple questions, which include both double negative questions to which a negative answer would be ambiguous and questions where a positive answer could refer to more than one component of the question (Garrett et al., 2003).

McKenzie (2007) mentioned other factors related to tendencies in the informants, which the researcher should take into account when using the direct method to measure language attitudes, particularly during the data collection procedure: First, social desirability bias, the tendency for participants to provide answers to questions that they believe are the most socially advisable and appropriate. Second, acquiescence bias, which happens when participants agree or disagree with items in interviews or questionnaires, regardless of content, in order to gain the researcher's approval. Their answers are thus not a true reflection of their own personal

perceptions of the attitudinal question and the validity of the data gathered is doubtful. Third, interviewer's paradox, where the participants' responses may be influenced by personal characteristics of the researcher(s), such as their perceived ethnicity, social status, gender, or age. The disadvantages of the direct methods have led to the development of an indirect method, "the matched-guise technique" (Lambert et al., 1960). Although I used the direct approach (questionnaires and interviews) in my study, the next section briefly discusses the indirect approach, particularly the 'matched-guise technique', for its importance in the measurement of attitudes.

2.3.1.1.3 The indirect approach

Garrett (2010) notes that in the indirect approach the respondents do not know exactly what is being studied. The purpose of the study is made less clear to the informants; they are not aware that the researcher is interested in their attitudes towards the language. The main methodology within this indirect approach to the measurement of language attitudes is the "matched-guise technique".

Matched guise technique is introduced as a means of assessing language attitudes by (Lambert et al., 1960). In their approach the researchers record a single speaker reading aloud the same text multiple times. In each recording, the speaker reads out the texts in different accents, the same speaker uses different linguistic varieties and all other aspects of his speech stay as constant as possible. Each different voice is considered a different "guise"/respondent, however, the participants think they are listening to a different speaker in each recording. Participants are told that they will listen to a variety of different speakers, when in fact, it is the same speaker who recorded speaking in a number of different guises. Participants are requested to listen to each recording and assess the speaker, usually using a semantic-differential scale, in relation to a number of personality traits (e.g., friendly/unfriendly, intelligible/unintelligible, educated/uneducated, honest/dishonest).

One advantage of using this method is that the data collected is appropriate for statistical analysis and Principal Component Analysis (PCA) is often used to reduce the number of variables in the study (for a more detailed discussion of PCA see section 3.7). Criticism of the approach questions the way in which matched-guise technique presents speech varieties for assessment, such as "the mimicking authenticity problem" (when one speaker has to read

different texts in different accent varieties, it seems improbable that the recordings of each of these varieties will be truly accurate) (McKenzie, 2007).

The criticisms of the matched-guise technique have led to the development of the verbal guise technique (Hartikainen, 2000; Ladegaard, 1998). The process and theory is the same as for the matched-guise technique, except the verbal-guise technique differs in that a number of different speakers provide the recorded speech. This allows the researcher to obtain speakers who are native speakers of the varieties one is examining, and also removes potential issues such as the accent authenticity and mimicking authenticity (Garrett, 2010).

2.3.1.1.4 Attitude scales

Various methods have been used to measure attitude traits and one of the difficulties of conducting attitude research lies in coming up with ways to quantify such traits for analysis purposes.

In response to the difficulty of measuring attitude traits, Likert (1932) developed a method involving attitudinal scales. The Likert scale assumes that attitudes can be measured. It is a five-point bipolar scale which is widely used for scaling responses in questionnaire research: participants are given an attitude statement and asked to rate their agreement with this statement on a simple five-point scale (i.e., "rate from 1 to 5"). The original Likert scale used a series of statements with five response alternatives: strongly approve, approve, undecided, disapprove, and strongly disapprove. When responding to a Likert item, participants determine their level of agreement or disagreement on a symmetric agree-disagree scale for a series of items. Thus, the range is designed to measures/capture the intensity of their feelings for a given item. There's no wrong way to shape a Likert scale, and the most important concern is to include at least five response categories.

The Likert scale is the most common instrument for measuring attitudes and is broadly used in LMLS surveys (Bourhis, Giles, & Rosenthal, 1981). The Likert scale has many advantages: it is simple to construct, easy to read and complete for informants, and likely to produce a highly reliable scale (Bertram, 2013). It also permits different degrees of opinion, and maybe no opinion at all. Since it gathers quantitative data, the data can be analysed easily.

However, two of its limitations are acquiescence bias (informants agree with items as presented), and social desirability bias (informants answer items in a manner that will be viewed

favourably by others), which means that the informants tend to agree or lie in their responses to put themselves in a positive light (McLeod, 2008).

To overcome this limitation, I offered anonymity on the self-administered questionnaires in my study, which should reduce social pressure on the participants and accordingly may also reduce social desirability bias. Participants were not asked to write their names, addresses and telephone numbers on their questionnaires, but instead were just asked to send emails or call the researcher if they were interested to participating in follow-up interviews. This gave them more space and freedom in answering the questionnaires. I included questions that covered both positive and negative attitudes towards Arabic and English languages, cultures and identity, which should reduce the acquiescence bias and encouraged the informants to read the items before they agreed with them as presented.

Furthermore, in order to reduce the "observer paradox" influence, my wife and I started our interviews with our participants with small chats about the life in New Zealand and Arabic countries, their study or their work, while drinking a cup of coffee or tea. We showed participants the recorder and talked about it for few minutes, just to let them be familiar with it and let them feel relaxed and not nervous about its existence. Before we started, we also told them that the interview will be in both Arabic and English. We started our interviews in Arabic, as a preface, and after 15 minutes we told participants that we wanted to shift to English to complete the interview. So, when the participants were not interviewed immediately, drank tea or coffee with the interviewers and chatted with them, had seen and knew about the recorder, started chatting in Arabic about their lives, study and work, before we finally conducted the interviews, all this encouraged them to answer the interview questions freely (Za'rour 2018).

To sum up, in my thesis, I will follow Garrett (2010) who stated that the direct method is the most widely used in language attitudes research and usually involves questionnaires and interviews. Questionnaires are useful for accessing large numbers of respondents, while interviews are important for eliciting open responses and allow the interviewer to lead the conversation if the respondent deviates from the point. Moreover, the Likert scale is the instrument which I will use for measuring attitudes because of its common use in LMLS surveys.

In the next section I will present the second important theory in LMLS which is domain analysis theory.

2.3.2 Domains

A general picture of LMLS can be achieved by investigating the domains of language use (Fishman, 1964, 1965, 1971). Fishman's (1965) theory of domains of language use is extensively used and is concerned in identifying the domains where the majority/minority languages are used. A domain is known as total interactional settings of communication, such as home, friend, church/Mosque, school, work, etc. While a language might be maintained in some domains, it might be displaced in others (Fishman, 1966, 1971). For example, New Zealand English remains the dominant language in the New Zealand society, and immigrant languages remain limited to specific domains such as home and religion (Holmes, 2001; Starks, 2005). Furthermore, domains refer to language choice which appears in a community when the use of one particular language is associated with certain types of situations of activity (Fishman, 1965).

In my study, I propose home and religion domains to play a significant role in maintaining Arabic language more than friendship domain. In the next section I will present the third important theory in LMLS which is 'ethnolinguistic vitality theory'.

2.3.3 Ethnolinguistic vitality theory

Ethnolinguistic vitality theory has determined a number of ethnolinguistic vitality factors that are claimed to encourage language maintenance or language shift (Giles et al., 1977). Giles et al. (1977) argued for the significance of bearing in mind socio-structural aspects in influencing the vitality of an ethnolinguistic group in a contact situation. The vitality of an ethnolinguistic group is defined as 'that which makes a group likely to behave as a distinctive and active collective entity in intergroup situations' (Giles et al., 1977, p. 308).

This approach focuses on both *objective vitality theory* and *subjective vitality theory*. According to Giles et al. (1977) institutional support, demographic and status factors are three objective variables that combine to make up the vitality of ethnolinguistic groups. Ethnolinguistic groups could be assessed and classified as having low, medium and high vitality. High vitality groups are expected to maintain their language and culture in multilingual settings, opposite to low vitality groups who are expected to go through linguistic assimilation and shift to the host language and culture (Giles et al., 1977).

This model can provide a direction for future research on language attitudes, language maintenance and shift, language choice, and intergroup relations and shows the importance of ethnic group's perception and how it influences their attitudes and behaviours towards the community language (Yagmur & Ehala, 2011). The model is valuable in providing visions into the variables and mechanisms used in the maintenance and shift of a minority language in a language-contact situation (Yagmur, 2011).

Institutional support is an important objective indicators of vitality and has to do with the degree to which an ethnolinguistic group receives formal and informal support from different institutions or refers to the kind of recognition and use given to a language or variety in media, religion, politics, education and government services (Giles et al., 1977; Lewis, 2000). An example of this support and its effect on group's vitality and language maintenance is the use of Arabic language extensively in 12 schools and 38 religious programs in education in the U.S. through the Islamic schools which function as key assets for its maintenance (Dweik, 1980; Sawaie & Fishman, 1985). The same thing in my study, I propose informal support comes from the mosque in teaching Arabic language for Muslim children will help Arabic language maintenance.

Demographic variables are other important objective indicators of vitality which refer to those ethnolinguistic groups who are too many in numbers and highly distributed in a particular region or national territory and considered as more likely to maintain their language and culture more than those who are few in numbers and non-adjoining (for more information see Al-Khatib & Alzoubi, 2009; Othman, 2006).

Numerical strength "can sometimes be used as a legitimising tool to empower groups with the institutional control they need to shape their own collective destiny within the intergroup structure" (Harwood, Giles, & Bourhis, 1994, p. 168). Demographic variables also involve the group's rate of mixed marriages, birth rate, and the patterns of immigration. Higher percentages of Language maintenance tend to be among groups who prefer endogamous marriages (Clyne, 2003). And residential focus can arrange for more opportunities for language practice and enable cultural maintenance of the group (Holmes, 2001).

Status variables are the third objective indicators of the group's vitality which involve the social, socio-historical, economic, and language status factors of the group inside or outside the mainstream community. It is claimed that language maintenance is likely to occur when minority people socially accepted and regarded insiders rather than outsiders of the group

Kuiper (2005) and status of a language is improved when it is perceived as a ‘core value‘ by its speakers/users (Smolicz, 1980).

The history of the group also might affect its vitality when this group struggles for its rights. De Klerk and Barkhuizen (2005) mention that one of the factors that smooths language shift among Afrikaans in New Zealand “is its association with South Africa‘s apartheid history which brings with it feelings of inferiority” (p. 138).

Giles et al. (1977) argue in his model that these factors mentioned above shaping an objective vitality of the group as a collective unit. However, Bourhis et al. (1981) argued that group members’ subjective vitality perceptions could be important as the group’s ‘objective’ vitality or more helpful than objective vitality, as people often behave in response to their perceptions of reality rather than to objective vitality.

The subjective ethnolinguistic vitality model has mainly focused on perceptions of ethnolinguistic vitality and language attitudes and has been traditionally approached quantitatively. Bourhis et al. (1981) developed the subjective ethnolinguistic vitality questionnaire (SEVQ) to measure how group individuals actually perceive their own group and outgroups along vitality dimensions. It is argued that minority groups who assess their ethnolinguistic vitality as high are more expected to maintain their languages than those with low ethnolinguistic vitality perceptions who tend to replace their languages by the mainstream language (Bourhis et al., 1981; Bourhis & Sachdev, 1984).

To sum up, ethno-linguistic vitality is considered very important which helps different groups and communities maintain their ethnic languages. In my study, I propose that institutional support will help in Arabic language maintenance. The mosque and the kindergarten teach Arabic which will help the children to learn Arabic language, although the courses are not regular and the kindergarten has different teachers who speak different languages with the students and this will influence their Arabic language learning because the medium of communication with the students will be English unless the teacher is an Arab and speaks with them in Arabic. Regarding the demographic factors, I propose Jordanians in Christchurch to use their heritage language beside the majority official language of the host country because Jordanians are not too many, but they are connected and living in close suburbs to each other in Christchurch and this will motivate them to visit each other, speak Arabic language in particular domains, such as home. In the next section I will present the fourth important theory in LMLS which is the ‘core value theory’.

2.3.4 Core value theory

The core value theory refers to "values that are regarded as forming the most fundamental components or heartland of a group's culture, and act as identifying values which are symbolic of the group and its membership" (Smolicz, 1980, p. 1). Refusing core values carries the risk of removal from the group, so these core values are essential for the survival of the group and it is through core values that social groups can be recognized as distinctive ethnic, scientific, religious or other cultural communities (Smolicz, 1980). It is good to know that more than one core value may exist in one culture or ethnic group such as family and language for the Italians, religion, peoplehood and historicity for the Jewish in Australia, language for Poles, language for Greek, religion for the Irish, and ethnic language, identity, culture and religion for Iraqis in Wellington (Smolicz, 1980; Tawalbeh, 2017).

Smolicz (1981) mentioned that it is essential for any minority group, to maintain its heritage language, to have a number of cultural core values. These core values are fundamental to its language's maintenance and continuity. Therefore, because language is a cultural core value for Poles and Greeks, they are more likely to maintain their heritage language in a minority context. But, because language is not a cultural core value for the Dutch, they lost their language in similar context.

Internal and external pressures upon a group and rejection of core values, whether voluntarily or reluctantly, may result in the group's collapse (Smolicz & Secombe, 1989). In Australia the theory was tested among different minority groups and showed language maintenance among groups for which language is a core value, such as Polish and Greek and language shift among groups whose language is not important or marginal, such as Dutch and Italians (Smolicz, 1980; Smolicz & Secombe, 1989). Core value theory tested among other communities showed different core values, such as *religion* and *familism* and may help to language maintenance such as the effect of Islam on Arabic maintenance (Dweik, 1980; Tawalbeh, 2017). This is obvious in Assyrian churches and Iraqi Arab homes where ethnic language, religion and identity are core values for the majority of Iraqis (Tawalbeh, 2017). *Familism* was found to facilitate language maintenance in Latino families because they value communication with their families (Tannenbaum, 2009).

Arab Muslims mainly identify themselves through their religion and their Arabic language. Therefore, Arabs in general consider the Islamic religion and the Arabic language their core

value and in order to perform religious duties, the Muslim needs necessary to develop his/her Arabic language. Gomaa (2011) claimed that when language is intertwined with other core values, such as religion, the match between attitudes and language maintenance is even higher, whereas when the language is remote from other cultural aspects, the match is lower.

One important concept discussed in core value theory is attitude. Individuals who positively see their heritage language as a core value are more willing to maintain it and pass to other generations (Smolicz, 1981). This quantitative LMLS study examines the participants' attitudes towards maintaining the Arabic language as a core value. Because of the honorable history of the Arabic language, e.g., religiously and scientifically.

I propose Jordanians will regard Arabic language as a core value or an integral element of their culture, identity and religion and will show willingness and positive attitudes to maintain it. In the next section, I will discuss the most important factors that affecting LMLS.

2.4 Factors affecting LMLS

2.4.1 Demographic factors

Demographic factors play an important role in the process of LMLS. David, Cavallaro, and Coluzzi (2009) argue that language choice is influenced by factors such as gender, social status, education, age, ethnicity, length of residence (LoR), age at arrival, occupation, topic, place, speakers, media and formality of the situation. According to the literature age at the time of arrival (generation) and LoR are very important independent factors which might affect the process of LMLS.

Eckert (1997) proposed a method of categorising participants based on life-stages: childhood, adolescence, and adulthood. Moreover, most research on second language acquisition (SLA) confirms that learners' proficiency is to some extent influenced by their age at arrival to the host country. In other words, the age from which they are frequently exposed to the dominant language in the host country. This suggests that the younger the participants were when they arrived in New Zealand, the higher their English proficiency.

Many researchers have argued that low proficiency in the target language correlates with a lower generation (age at arrival) and a lower LoR; however, across many studies, the effects of LoR and generation have been difficult to separate (Asher & García, 1969; Moyer, 2011). These variables tend to confuse each other because the younger the immigrants were at their arrival

in the host country, the longer they are likely to reside in the country (Moyer, 2009). However, in my study, I have separated generation from length of residence and treated them as two independent variables, because some of my speakers have been in NZ for 20 years, some arrived after the age of 16, others between the ages of 6-16, some between the ages of 2-6 and some were born in New Zealand. For this reason, it would have been misleading to treat them as one independent variable. I also predict that those who have been in the host country for a long period of time will produce more New Zealand English influenced variants than those who have only been in the country for a short time, even if they arrived in NZ after the age of 16.

Usage of Arabic or English across generations and LoR and change is one of the objects of this study. Respondents in the current study in the questionnaire were asked to indicate the year when they arrived in New Zealand, and this information was used to categorize each participants' length of residence in New Zealand into the following three groups: 1 to 10 years, 11 to 20 years, and 21 to 30 years. The participants were also classified into three generations, according to age at arrival: 1st (16+years), 1.5 (6-15 years) and 2nd (0-6 Years). According to the literature, those who arrive in the host countries as adults (i.e., 1st generation) are often more likely to maintain their ethnic languages than those who arrive at an early age (1.5 and 2nd generations) (Al-Sahafi, 2010; Revis, 2015; Tawalbeh, 2017). Likewise, a clear shift to the host language by the second and third generation has been reported in different immigrant communities (see Dweik, 1980; Holmes et al., 1993; Tawalbeh, 2017). The 1.5 generation is sometimes described as the lost generation: Rumbaut and Ima (1988, p. 22), who first used the term 1.5 generation, described the Southeast Asian refugee youth in their study as "marginal to both the new and old worlds, for while they straddle both worlds they are in some profound sense fully part of neither of them". Solberg (1992) characterised Korean-American Youth as marginalised and negatively claimed that generation 1.5 can be lost forever, and most of them are lost. So, this group is often described as being lost and caught between two worlds (Roberge, Siegal, & Harklau, 2009).

Jordanians are new in New Zealand and have not been in the country for more than twenty-five years. 1.5 generation participants represent a transitional point on the age scale, they are exposed to both the younger people (2nd generation), who are more like New Zealanders, as well as the older (1st generation), who are more like Arabs. Therefore, the 1.5 participants are expected to show different patterns of language use, attitudes and linguistic variation from their younger and older counterparts. The majority of the 1st generation group, on the other hand, were probably born in Jordan or Palestine and spent their childhood there.

Larson-Hall (2006) has examined whether expanded LoR in adulthood can provide enough input to overcome age effects. She found that 10 out of 12 Japanese learners of English with expanded residence (12 years or more) produced liquids as accurately as native speakers of English (NS). Furthermore, LoR was found to be a very significant factor in the shift to English among the second generation UK born Arab Yemeni community (G. Ferguson, 2013). In his research on the centralization of the diphthongs PRICE and MOUTH in Martha's Vineyard, Labov (2001b) argues that generational change, more than communal change, is the main model for sound change. Walker (2014) argued that acquiring different complex features of a dominant language variety can be accomplished only at a young age. The younger the speakers, the more they could acquire the complex phonological features of the dominant language. Gnevsheva (2015) said that "a longer length of residence correlates with the breadth of sociolinguistic variation as speakers' exposure to different settings and audiences is enriched and the L2 identity is further developed" (pp. 64-65).

The age factor has also been found to be of great significance in various previous studies of linguistic diversity. Researchers have revealed that sound change in progress is salient by making a comparison between change in "apparent time" and change in "real time" (Labov, 1966; Trudgill, 1974). The former refers to the distribution of linguistic variables across age levels, whereby any linguistic differences between different generations of speakers are understood as evidence for change in progress. This method became common because to study linguistic change in real-time requires a large time-investment, decades or even centuries, which consequently makes it problematic to observe a change in progress. But when using the apparent-time hypothesis, successive age groups stand in for different periods in time (Labov, 1994).

The justification behind my division of participants by generation as well as length of residence is to discover exactly to what extent living in an English-speaking country has influenced the linguistic behaviour of the Arabic Jordanian people, as differentiated by these three levels of generation and LoR. The reason for considering generation and LoR as social factors in my research is that in a lot of literature these two social factors appear to be significant factors in both LMLS and LVC, in that different generations and LoR groups exhibit different linguistic behaviour. I believe that both generation and LoR should be studied if I intend to give a clear picture of the situation of the heritage and the host languages and the linguistic situation of the Jordanian community in New Zealand in order to determine the key factors which lead to linguistic variation.

Size of the minority group is sometimes an important factor in the process of LMLS, such as with Maltese in Australia: the places with large numbers of Maltese speakers (Victoria and New South Wales) had the lowest rate of shift towards English language (Holmes, 2001). However, the Dutch are considered one of the largest immigrant groups in Australia, but it is notable that they do not preserve their native language and have the highest practice of language shift compared to other major ethnic groups (Clyne, 1985). Because the Jordanian community in Christchurch is considered to be the second largest Arabic community after the Egyptians, I expected to find a result similar to that reported in Holmes, (2001): Jordanians will show Arabic language maintenance rather than shift towards English in specific domains, such as the home domain.

Occupation is also sometimes considered an important factor in the process of LMLS and LVC. Those who are working will be more eager to interact with speakers of the dominant language and to participate in their core culture, and this will work against heritage language maintenance. Those speakers will face gradual regression in their use of their heritage language and shift to the dominant language and at the same time, they will tend to produce more native speaker variants than those who are not working and don't communicate frequently with native speakers of the dominant language and don't participate in their culture (Dweik, 1980; Reid, 1978). Furthermore, occupation of the speaker affects language choice. For example, speakers in the Creole Speech Community select Spanish when speaking to elite professionals such as doctors, lawyers and dentists (Sharp, 2001). In my study, I am interested in exploring the effect of occupation in the production of English language among Jordanian speakers. Speakers were categorized as 'in-work' and 'not in-work' in the study. I expect those who are "in-work" to show more native NZE variants than those who are "not in-work".

Early work in the field of sociolinguistics like Labov (1966) and Trudgill (1974) among others, revealed that differences in gender are quite important in shaping linguistic behaviour. The significance of gender differentiation has also been prominent in variation studies on spoken Jordanian Arabic (See, Abdel-Jawad, 1981; Al-Ali & Arafa, 2010; Al-Khatib, 1988; Salman & Moh'd Said, 2003).

The importance of gender in understanding language use is grounded on the observation that females and males have a tendency to compete with, and assess themselves against, members of their own gender (Eckert, 2000). Trudgill (1982) claimed that "It has been known for some considerable time that in some societies language is involved in covariation, not only with parameters such as social stratification, social context and age, but also with the parameter of

sex" (p. 395). Furthermore, discussing the role of women in linguistic variation and their major contribution to sound change in many societies emphasises the social nature of gender differences (see for more information Al-Ali & Arafa, 2010; Al-Khatib, 1988; Al-Wer, 2002; Bell & Holmes, 1992b; J. Milroy & Milroy, 1978).

The results of most sociolinguistic studies on gender and language change have one very striking feature in common, "they are all agreed that women, allowing for other variables such as age, education and social class, produce on average linguistic forms which more closely approach those of the standard language or have higher prestige than those produced by men" (Trudgill, 1982, p. 395). Gender refers to the psychological, social and cultural differences between males and females, which are responsible for the linguistic differences. Men and women linguistically behave differently because of the differences in what is expected from them in their societies. Labov (1994) also argues that it is important to focus on the social factors and their influence in linguistic change among females, rather than the aspects of biologically based cognitive superiority. He claimed that women react to prestige or stigma more quickly than men do, and women are faster in using the new changes.

Despite these widely-reported trends, there have been some studies which show that in some contexts men favour the prestige form more than women. For example, Labov (1994) tried to find the reason behind the men favouring the prestige forms more than women in the Near East and South Asia. He mentioned this as a reversal of the positions of men and women in linguistic studies in these countries and started guessing that this might be an outcome of women's minor role in public life in these cultures (Labov, 2001b). The existence of a reversal in gender behavior in the Near East was argued by Haeri (1996) as mentioned in Labov (2001b, p. 270): "it is based on an erroneous interpretation of the role of Classical Arabic [i.e. Standard Arabic] as comparable to the standard languages of the West". Haeri (1996) mentioned that the closest parallel to such a standard is not Classical Arabic but Modem Urban Arabic, which women favour. Al-Khatib (1988) also showed gender differences in Jordan (Irbid city) and considered them to be an invaluable factor in helping to reveal the origin and tendency of change. However, he found that men show significantly higher percentages of use of the standard Arabic variant [q] than women do.

The reason for considering gender as a social factor in my research is that gender looks to be an important factor in LMLS and LVC according to the literature, and the two genders appear to behave in different ways linguistically. I believe that gender cannot be ignored if we intend to give a clear picture of the situation of both the heritage and host language, and the overall

linguistic situation of the Jordanian community in New Zealand. I focus on these social and demographic factors (gender, length of residence (LoR), age at arrival and occupation) and their effect on the process of LMLS. The second factor affecting LMLS, which will be discussed in the next section, is the domains.

2.4.2 Domains

Researchers in the field of LMLS are usually concerned with determining the domains where minority languages are frequently used, and where the process of language maintenance occurs in the various migrant communities (Rubino, 2010). The discontinuity of intergenerational language transmission and a decrease in the domains of minority language use are signs that the minority group is shifting to the dominant language (Fishman, 1991; Holmes, 2001). Recent research on LMLS has argued for the necessity to include domains that have been ignored by traditional research (Anikó Hatoss, 2013). Domains such as media, sports, neighborhood, place of work, and immigrants' clubs/churches and self-expression are attracting some research interest (Aipolo & Holmes, 1990; Dweik, Nofal, & Qawasmeh, 2014; Anikó Hatoss, 2013).

The most important domain for language development and LMLS is the home, with language transmission from parents to their children being a vital component of continuous language use and proficiency (Fishman, 1991). The communication between parents and children in the minority language is "the heart of the entire intergenerational transmission pursuit" (Fishman, 1991, p. 398). Fillmore (2000) pointed out that there is an important role for the family to play in minority children's first language maintenance:

> Parents should be encouraged to find time to talk with their children, read to them (if this is a practice in the culture of the home), and teach them things that interest educated members of their group. Families that come from cultures with a rich oral tradition will have many stories and histories to share with the children. Teachers should encourage them to use these materials and to regard them as equal to written materials that other families might use with their children at home (p. 209).

Research has also shown the importance of ethnic language use at home in socializing children into their religious and ethnic identities (for detailed information see Al-Sahafi, 2010; Tawalbeh, 2017). Parents are the first ethnic language contact for second generation immigrant children and the main source of ethnic language for those children. Research has shown that

the interaction at home between children and parents in these families is often conducted in the ethnic language (Han, 2003). Children tend to interact in the ethnic language with their parents, while in contrast often speaking the dominant language with their friends. Therefore parents alone seem to greatly influence maintenance of the ethnic language (Park & Sarkar, 2007).

Moreover, the active use of a minority language by its community in a number of different domains such as media, education, home, religion and work can play an instrumental role in supporting minority languages and maintaining them, and this can be seen in the revitalisation of indigenous languages such as Māori (Holmes, 2001). Domains are extremely useful for capturing wide generalizations about any speech community and showing which code or codes are normally preferred in a distinctive situation. Holmes (2001) has explained the reasons for people's choice of one language or variety over another in distinctive social contexts, by saying that:

> the reasons for the choice…of one dialect rather than another involve the … social considerations – the participants, the social setting, and the topic or the purpose of the interaction (p. 6).

Holmes (2001) has proposed that economic factors are also vital in LMLS, as language maintenance may to some extent depend on whether members of the community perceive any financial benefits in learning the minority language. Job gain is an economic rationale for learning the language of the majority. For example, in countries where English is an official or a majority language, people prefer to learn English instead of a minority language in order to obtain better jobs.

I focus on three domains (home, friendship and religion), and investigate their effect on the process of LMLS. There are other important factors affecting the process of LMLS. According to Holmes (2001), positive attitudes towards minority languages help and support efforts to use the ethnic language in different domains. Attitudes will be discussed in the next section.

2.4.3 Language attitudes

This section presents a review of some research about attitude and its relationship with LMLS. A positive attitude towards the language and its culture are an essential ingredient in language maintenance. Holmes (2001) reported that "positive attitudes support efforts to use the minority

language in a variety of domains, and this helps people resist the pressure from the majority group to switch to their language" (p. 61).

A positive attitude towards the language increases the probability of that language being spoken in many domains and this helps it to survive. Language maintenance and shift may be affected by the attitudes of the minority group towards its own language and culture. Language maintenance may be promoted through positive attitudes and associations among minority group members who are people belonging to upper or middle social classes, have higher education and have political, cultural and religious leaders among them (Fishman, 1966). Their positive attitudes towards the language and culture may reinforce and encourage them to protect their ethnic identity and maintain their language even in the majority country (Giles & Powesland, 1975).

Tawalbeh (2017), in his investigation of the languages of the Iraqis in New Zealand, highlights the role of language attitudes, pride and awareness and the use of Arabic as a core symbol of Iraqi culture and religious identity, among other significant maintenance factors. Dweik (1980) did a comparative study of two Arab communities – Lebanese and Yemenite – in New York and found a significant correlation between language attitudes and language maintenance and shift. The second generation of Arab Yemenites exhibited better Arabic proficiency and use, which were correlated with positive attitudes towards Arabic maintenance. However, the second and third generation of Christian Lebanese had shifted to the dominant language English, and this shift correlated with negative attitudes towards Arabic; approximately all Christian Lebanese participants reported that Arabic was less important than English.

The attitudes of the majority communities towards minority communities, their languages, and cultures are also significant for language maintenance and shift (Dőrnyei, 2003; Roberts, 2005). If majority communities have negative attitudes towards a minority community, language, culture, there is a danger that the minority language will not be maintained in that community (Hornberger & Coronel-Molina, 2004). Multilingual policies and an appreciation of ethnic diversity can provide support for migrants to preserve their own languages and cultural identities (Abdelhady, 2011; Holmes, 2001). Abdelhady (2011) mentioned the importance of the Canadian cultural context, where ethnic diversity is valued, which allowed the Lebanese to build a Lebanese identity and appreciate bilingualism.

Furthermore, if negative attitudes towards a language are found among its own speakers because the language is associated with poorly educated people and low economic status, then

there can be a language shift, as was found in Hungarian vs German in a study by (Gal (1979). Hungarian was linked with lower social class, lower economic status, language of the past and for elderly people, while German was associated with higher social class, education, higher economic status, language of the future and youth. Gal (1979, p. 107) says that:

> Today the children of a monolingual German speaker and a bilingual German–Hungarian speaker virtually never learn Hungarian regardless of which parent is bilingual.

However, Fishman and Burunat (1985) mentioned that positive language attitudes do not always lead to language maintenance. According to Smolicz (1981) each minority group has particular cultural values and attitudes that are basic to their continued survival as a minority group, and language is such a value to some minority groups. If language is intertwined as a core value with other core values such as religion, identity and history, language maintenance can be achieved (Smolicz, 1981). A good example can be the Iraqi Arabic speakers in Wellington, where the Arabic language is intertwined as a core value with the Islamic religion, Arabic culture and identity (Tawalbeh, 2017). In this thesis, attitudes toward Arabic language and culture and attitudes toward English language and culture (and NZE particularly) will be investigated and analysed. The next section will discuss religion as the fourth major factor that affects the process of LMLS.

2.4.4 Religion

Language can be viewed as a cultural core value that is linked with other core values such as religion and identity (Fishman, 2010; Smolicz, 1980, 1999; Turjoman, 2017). Languages like Arabic, Syriac, Hebrew, and Giiz have "sacred" value for Muslims, Assyrians in the Near East, Jews, and Ethiopian Orthodox Christians, respectively, and Assyrians assign a religious value to Syriac as the language of the Bible (Spolsky, 2003, pp. 84-88). Cooper (1989) discusses the language choices associated with religions, such as the preference in both Islam and Judaism for maintaining sacred scripts and prayers in a single novel language. The Arabic language is appreciated by Muslims as it "socialises [them] into the rituals of Islam, affirms their identity as Muslims and connects them to the realms of purity, morality and God" (Haeri, 2003, p. 43). The importance of religion to language maintenance has been widely recognised in the literature (Fishman, 1991, 2008; Spolsky, 2003; Xiaomei Wang, 2016). It is argued that religion is an important contributing factor in language maintenance and loss (Spolsky, 2003). Fishman

(2006) mentioned that religion facilitates the maintenance of Yiddish across Yiddish-speaking Hasidic Jews in New York and Pennsylvania German. Many researchers have argued that the use of Arabic in religious contexts is one of the factors that promoted its maintenance among Arabic immigrants and that language is likely to be maintained when it is strongly associated with religious expressions (Fishman, 1991; Karan, 2011). For Muslims, the Qur'an was revealed in the Arabic language; thus, they "must know Arabic to know their Holy Book" (Owens, 2000, p. 12). Islam is fundamentally and strictly linked to Classical Arabic. Classical Arabic dominates the Islamic religion linguistically. The Qur'an is considered as the actual word of God, which can be recited only in Arabic, and prayers should also be recited in Arabic only. There is a disagreement over its translation, so Friday sermons can only be delivered in the vernacular in non-Arab societies (Spolsky, 2003).

Researchers have studied whether religious affiliation (e.g., Islam, Christianity, Judaism, etc.) has a role in the maintenance of Arabic language. Dweik (1980) found that second generation Christian Lebanese in New York were less confident in their Arabic proficiency than second generation Muslim Yemenite-Americans. He described the complex relationship between Islam and Arabic among his Yemeni speakers, saying: "Islam is the essence of their life…Any attempt to preserve Islam had to be accompanied by procedures to preserve the Arabic language" (Dweik, 1980, p. 43). Similarly, Tawalbeh (2017) found that religion was an important factor and central component in his participants' identification as Iraqis, and that religion was employed as a learning tool for language maintenance. He concluded that ethnic language, identity and religion are a core value for Iraqis.

These results highlight the relationship between religion and LMLS of Arabic in an immigrant context and the importance of analysing the "religious domain" (Fishman & Burunat, 1985, p. 268) in LMLS studies. The religious domain is the first social structure after the family (home domain) that affects language use (Fishman, 1971; Spolsky, 2009). Religious organisations are considered to be one of the main places where linguistic and ethnic identities can be maintained (Holmes et al., 1993; Revis, 2015; Spolsky, 2009). According to Spolsky (2009), the church, mosque, or synagogue remain the main domain for immigrants to preserve their heritage language.

In spite of the positive connection between language and religion and language maintenance, research has showed that the influence of religion in language maintenance is not permanently positive (Spolsky, 2003; Xiaomei Wang, 2016). For example, Xiaomei Wang (2016) investigates the influence of religion (Catholicism) on the maintenance of the Hakka dialect in

a Malaysian Chinese community in Balik Pulau town, and shows that religion has not played a significant role in the maintenance of the dialect, and that the Church has shifted to Mandarin. Furthermore, religion has been one of the most influential forces leading to language change and language spread, and language contact and change is said to be a general outcome of religious conversion, such as conversion to Islam in Makassar in Indonesia (Spolsky, 2003, p. 82). A. Woods (2006) studied different ethnic Christian churches in Melbourne, Australia. The study involved different denominations and different languages. She tried to study the different attitudes towards the use of the immigrant language in services. In a Latvian Lutheran church, services were found to continue in Latvian and the use of English in some services is debatable for younger speakers. In an Indonesian Uniting Church, services were accomplished in Indonesian with some translation occasionally.

While there is plenty of research that investigates the role of religion and Arabic language maintenance around the world, there has been lack of research investigating immigrants from the Arab World in New Zealand, and Jordanians are a good example here. Hence, one of the main aims of this thesis is to respond to this lack in research and examine the relationship between religion, language use and attitudes among the Jordanian living in Christchurch. In the next section, I will present some overseas and NZ research on LMLS.

2.5 Overseas and New Zealand research on LMLS

The following sub-sections explore the empirical research on LMLS involving the Arabic language in Arabic and Islamic countries and in English-speaking countries (US, UK, AUS and NZ).The overview is not intended to be comprehensive; rather, it is representative.

2.5.1 LMLS in Arabic and Islamic countries

Many studies have examined the language situation of minority groups in the Middle East, such as Abdalla (2006), Al-Khatib (2001), Dweik (2000), Al-Khatib and Alzoubi (2009) and Tawalbeh et al. (2013). For example, Al-Khatib and Al-Ali (2005) investigated language and cultural maintenance among the Gypsies of Jordan, and found that Arabic is used for many purposes and Gypsy is only used in different social contexts such as the home, cultural and religious contexts and neighborhood. Language maintenance is due to the fact that the Gypsies find themselves incapable to integrate with the majority-group culture and thus often congregate

in their own areas by the element of necessity imposed on them by the dominant community. His study concluded that the social and cultural separation of the Gypsies from the Jordanian community has facilitated the cultural maintenance among them.

However, this situation is not applicable to all minority groups in Jordan. For example, Al-Khatib (2001) examined language shift among the Armenians of Jordan and found that the Armenians of Jordan are facing an ongoing shift toward Arabic that may result in language loss on their part. This is interpreted as being due to the fact that Arabic is used in most social settings, while the Armenian language is used only in very controlled domains.

Abdalla (2006) examined language maintenance and language shift among Arabized Malays and found that this community has excellent Arabic proficiency. The findings also showed that these people have not experienced language loss, nor face many problems in maintaining the Arabic culture, and are interested to use Arabic in cooperating with others. However, because Malay is the medium of instruction, language shift was remarkable.

Tawalbeh et al. (2013) studied language maintenance and shift amongst Saudi Hausa in Mecca, Saudi Arabia, and found that in contact situations, immigrants live with the dilemma of two conflicting desires: they want to maintain their language as part of their heritage and ethnic identity, but they also want to be involved within their host community. The promotion and encouragement of the former may preserve the language, while enforcing the latter may result in immigrants losing proficiency in their ethnic language through generations and eventually shift towards the dominant language. The research indicates that Hausa speakers in Saudi Arabia are shifting to the use of Arabic and the authors relate this shift to socio-economic and religious factors as well as negative attitudes towards the Hausa language. Interestingly, endogamous marriage does not appear to help Saudi-Hausa to preserve their language. The Hausa language is not being maintained, even though Saudi-Hausa almost always get married to each other. The promotion and encouragement of the former may preserve the language, while the application of the latter may result in immigrants losing proficiency in their ethnic language through generations and eventually becoming the dominant language.

Al-Majali (1988) studied the Circassians as a minority language group in Jordan. She examined language proficiency, attitudes and use. Her data were collected from twenty-four participants, using questionnaires, interviews and observations. The results showed that although the participants had positive attitudes towards their mother tongue, the subjects lacked fluency in

their mother tongue and declared that there was a decline in their motivation towards Circassian language use.

2.5.2 Arabic LMLS in USA

Arab-speaking immigrants began arriving in the United States in large numbers at the end of the 19th century (Sawaie & Fishman, 1985). Arab Christians were the first to start emigrating from Lebanon to the US. Since Arab Muslims feared losing their religion in the new country, their immigration was delayed until two decades later (Elkholy, 1966). Arabic immigrants were have been studied in the United States since the 1980s (see Dweik, 1980; Sawaie & Fishman, 1985; Seymour-Jorn, 2004). An important study of Arabic in the United States was Dweik (1980), who investigated the factors that determined language maintenance or shift in two Arab American communities in Buffalo. The two Arab-American groups that were chosen for the study were the Yemenite community and the Lebanese community in Buffalo and the Niagara Frontier. Though the two groups had the same heritage language, they differed in many other respects: religion, time of immigration, life–style and reasons for immigration. Dweik conducted interviews, observations and distributed questionnaires. The results showed that Arabic was the first language of the Yemenite participants and their parents, while English was the first language of the Lebanese participants and their parents. Also, the Yemenite respondents had good oral and literacy skills in both Arabic and English, while the Lebanese had a poor knowledge of Arabic and were excellent in English. Moreover, the Yemenite participants reported using Arabic in all domains, whereas English dominated all domains in the Lebanese community.

In addition, Dweik (1980) found that the Lebanese immigrants had negative attitudes towards Arabic: Arabic was considered less beautiful and less useful than English and not important for them to learn at school or to speak at home. The Arabic language was dying in both Lebanese homes and community. At the same time, the Lebanese participants expressed positive opinions about English, and they favoured English for teaching in their schools. The significance accorded to English stemmed from its necessity for living, working and interaction with Americans. The Yemenite participants, on the other hand, had very different opinions. They evaluated Arabic as more beautiful than English and considered it an important language because of its links with their parents' past, culture, and religion. Moreover, Arabic was preserved and used in Yemenite homes and the community, and the Yemenite participants

expressed very emotional and negative opinions towards Arabs who stopped using Arabic in the United States.

Another important study was Sawaie and Fishman (1985), who investigated the Arabic language maintenance efforts and use in three Arabic institutions in the United States: (1) the periodical press, (2) places of worship, and (3) ethnic schools. Sawaie and Fishman (1985) mentioned four factors which encouraged Arab immigration to the United States including, "the economic lure in the new world and the poor economic conditions in the old countries, the political insecurity under the Ottoman rule at that time, the desire by many to evade the universal army conscription instituted by the Turks in 1908, and sectarian strife between disparate communities" (p. 33). They concluded that Arabic was shifted by the majority English language in all three domains they investigated, for the following reasons: (1) the size of the Arabic minority group was small, (2) the social power of the English language and the pressure towards Americanization and assimilation, and (3) the absence of the national identity among those Arabic immigrants.

Seymour-Jorn (2004) also investigated the connection of Arabs to Arabic language in Milwaukee, Wisconsin, USA as a method of maintaining cultural identity. She did interviews with Arab-American students at the University of Wisconsin as well as selecting some Arab-Americans from the community in the city. She found strong connection with Arabic language education and maintenance mainly among Arab-Muslim families who had immigrated within recent decades. The concern in preserving and learning Arabic language generates from the strong leadership structure in the Arabic American society, the attitudes of the community members that young Muslims have a responsibility to read the Qur'an at first and understand it, and the constant connection with the heritage country results in students' attitudes that Arabic is essential for maintaining the cultural identity and for maintaining relationships with families overseas.

Albirini (2014) examined the Arabic language proficiencies of Egyptians and Palestinians in the USA, evaluated the relationship between their Arabic proficiency levels and other linguistic, socio contextual, socio-affective, and demographic factors, and investigated the importance of these factors in determining proficiency in heritage Arabic. 20 Egyptian and 20 Palestinian Arabic speakers performed an oral narrative that was used for evaluating their Arabic language fluency, grammatical accuracy, and syntactic complexity. They also filled in a questionnaire about the factors influencing their heritage language skills, including language input, language

use, family role, community support, school, language attitudes, ethnic identity, and demographics. Follow-up interviews were done with five Palestinian and five Egyptian participants. The findings indicated that the Palestinian speakers were more proficient than their Egyptian counterparts in terms of language fluency, accuracy, complexity, and overall proficiency. Earlier studies had yielded similar results and indicated that Palestinian heritage speakers achieved systematically higher proficiency in Arabic than their Egyptian counterparts for a number of syntactic and morphological features (Albirini, Benmamoun, & Saadah, 2011). Similarly, Albirini and Benmamoun (2014) found that Palestinian speakers had better understanding of plural and dual morphology than Egyptian speakers. Albirini (2014) said that the interviews showed that the linguistic knowledge of Palestinian heritage speakers compared to their Egyptian counterparts due to their interest in Arabic as a sign of their heritage and identity. Family's prompting to maintain the language of their heritage, and the broader social networks they can access.

2.5.3 Arabic LMLS in the UK

Much sociolinguistic work in the UK has focused on the language of different minority groups and their attitudes towards it (G. Ferguson, 2013; Gomaa, 2011; Othman, 2011). Othman (2011) examined Arabic language maintenance within first and second generation Arab migrants in Manchester. He collected his data through semi-structured interviews, observation, and focus group discussions. He was interested in finding out whether the informants form a speech community although they originate from different Arab countries and speak different Arabic dialects. He investigated language choice patterns, proficiency and attitudes towards both Arabic and English within both generations, the language policy of Manchester's Public Services and its effect on the maintenance of Arabic, providing an assessment of the process of language maintenance in an immigrant context and the roles of diglossia in Arabic language maintenance. Generally, the findings showed Arabic language maintenance among both first and second generations of immigrant Arabs in Manchester. Moreover, the findings showed that Arabs from the different Arab countries do form a unified speech community. The language choice patterns show that Arabic is used within families, and that parents emphasize to their children that it is important to maintain the border demarcation between Arabic and English; "Arabic is used for intra-group interaction, and English for inter-group interaction" (Othman, 2011, p. 9). Moreover, the participants were proficient in Arabic and could use it in different situations and for different communicative tasks. They also had positive attitudes towards their

bilingualism and language maintenance of Arabic. Manchester's Public Service language policy has a positive effect on language maintenance of the immigrants and the diglossia of the Arabic language is not a problem for Arabic language maintenance.

Another study was carried by Gomaa (2011), on Egyptian Arabic (EA) in Durham, UK. He did a qualitative study that examined the experiences of five Egyptian families, living in Durham, UK, who were trying to pass EA on to their children. He mentioned that the dialect is one of the noticeable markers of Egyptian cultural identity, and ensuring its continuity is one of the major difficulties faced by the Egyptian families in Durham. The study aimed to assess the status of EA maintenance and transmission at the family level, based on interviews and observations. In the study, Gomaa (2011) addressed the following questions: "How do these language-minority families describe barriers to and supports for passing on EA to their children? What are the factors that help their children to preserve EA? What language decisions they make in order to fulfill their roles? How such decisions are linked to their identity as Egyptians living in an English-dominant country?" (p. 46). The most important results showed that the Egyptian speakers regarded EA as a cultural core value that is linked with other core values such as religion and identity. This is also the response I expect from my participants: I predict that they will regard the Arabic language as a religious core value which is linked with other core values such as identity and culture.

G. Ferguson (2013) conducted a study among Arabic Yemenis in the UK and found a language shift in the younger generation, particularly the UK-born, to an English-dominant bilingualism. This was evident from observations at school, which discovered students' preferences for English in communication with friends during break times and in class. Results from a questionnaire were also similar: 55% of students reported that they use English with siblings, against 7% who reported they always or usually used Arabic. This result was also broadly confirmed by interviews with students and parents, as illustrated by the following comments made by a 16-year-old female participant (Muna) and one mother (Huda):

"Interviewer: What languages do you use at home?

Muna: With my parents I speak in Arabic but with my brothers and sisters I speak in English . . . but I get gobbed at when I speak in English (laughs).

[…]

Interviewer: What languages do your children use at home?

Huda: Oh . . . between siblings . . . English all the time

Interviewer: Does that worry you?

Huda: Yes, that's my big worry, I worry about it a lot and don't know... I'm looking for a solution. I have TV at home with Arabic channels but when I put on the Arabic channels they move out of the room and go to the bedrooms. They prefer English" (G. Ferguson, 2013, p. 123).

I expect my 1.5 and 2nd generations and those who have been in the country for long time to give similar answers in their self-reported questionnaire. I predict that they will report speaking Arabic with their parents and English with their siblings at home.

2.5.4 LMLS in NZ

There has been much research on LMLS in New Zealand in the last two decades and most of this research has concentrated on exploring immigrants' attitudes and experiences in New Zealand. For example, Holmes et al. (1993) investigated the process of language shift and maintenance in three ethnically different communities in Wellington, New Zealand: Tongans, Greeks, and Chinese. The participants were interviewed about their language proficiency, language use and attitudes to their language. The study showed the importance of using the heritage language at home and using it outside the home, such as at community social events, at school, and in church. Continuing contact in the form of letters, trips, and visitors also supports the use of the language. In addition, exposure to the community language, positive attitudes towards the language and towards the ethnic identity and to the idea of language maintenance all are important. "No one factor can guarantee successful language maintenance, but a variety of combinations of those discussed in this paper appear to provide a relatively successful recipe for slowing down language shift" (pp. 20-21).

Kuncha and Bathula (2004) investigated language attitudes of mothers and children in the Indian Telugu community and how they might lose their heritage language in an English-speaking country like New Zealand. Telugu speakers are a new immigrant minority group in New Zealand and their numbers were estimated to be over 10000, with the population increasing rapidly. The study revealed that Telugu people use of their heritage language has dropped significantly in contrast to the use of English language and the decline of the Telugu language is lower in speaking and listening skills than in reading and writing skills. Telugu

people reported positive attitudes towards English and were proud to use it and children reported that they are always motivated by their parents to use English language. The majority of mothers and children didn't feel it is necessary to learn Telugu. Mothers reported that it is a waste of time to learn Telugu in New Zealand and mothers and children were not enthusiastic or proud of their bilingual ability. Kuncha and Bathula (2004) concluded that although most of the Telugu people speak their heritage language at home, the children were quickly losing their language in such a short period of two years.

Crezee (2012) examined language use among Dutch migrants in New Zealand. The study focused on the motivation of the participants to either maintain their first language (Dutch) or shift to their second language (English) in the home environment. The findings showed that external societal attitudes influenced participants' language use in a number of domains. Questionnaires' responses showed that many participants had shifted to the use of English at home as soon as the children started school. The study involved 30 retired Dutch migrants living in Auckland. All of them had arrived in New Zealand when they were between 18 and 35 years old, and they were aged between 65 and 92 years at the time of the research. All participants were asked questions about their language experiences and use since migration.

Plimmer (1994) studied language maintenance and shift among members of the Italian community in Wellington. She studied their language proficiency, attitudes and their language use patterns and concluded that there was a reduction in the language proficiency and use among members of the second generation compared to the first generation, and the English language dominated over Italian in all domains among all participants. However, she also noted that Italian people in Wellington had a positive attitude towards the Italian language, and she concluded that in order to maintain Italian for the third generation in Wellington, efforts need to be increased.

2.5.5 Arabic LMLS in NZ

In spite of the large literature investigating Arabic in immigrant contexts around the world, there are just two scholars that have studied language maintenance, shift and attitudes among the Arab migrants in Auckland and Wellington in New Zealand (Al-Sahafi, 2010; Tawalbeh, 2017).

Al-Sahafi (2010) studied the dynamics of Arabic maintenance in Auckland at the family level, given the importance to the family as a site of intergenerational language transmission. Ten

Arabic Muslim immigrant fathers and their children who attended an Arabic weekend school were questioned about their language-related experiences and perspectives. The data were collected using semi-structured interviews and observations. The study showed that the process of Arabic maintenance was associated with two struggles among these ten families: first, the diglossic situation of the Arabic language which required the teaching and maintenance of two Arabic varieties (standard and colloquial); second, the competition with the dominant language in New Zealand, i.e. English. The results showed that there were connections between the Arabic language, religion and identity and those connections seemed to be a strong motivation factor in favour of home language maintenance.

The second LMLS research was done by Tawalbeh (2017), who explored language maintenance dynamics among the Wellington Iraqi refugees (the Muslim Iraqi Arabs and the Christian Assyrians), using a mixed methods approach in which quantitative and qualitative data were gathered and analysed. In his thesis, Tawalbeh focused on post-migration experiences, (imagined) future spaces of language use, transit experiences and pre-migration attitudes. For pre-migration data, he collected data from Iraqi refugees in Jordan using semi-structured interviews, because Jordan was a major transit centre for them. Post-migration data was collected in Wellington using four methods: a questionnaire, semi-structured interviews, three extensive home recordings and participant observation. Tawalbeh's findings highlight the importance of pre-migration data for clarifying the variations in Iraqis' linguistic abilities, preferences, and their attitudes towards Arabic LM prior to arrival. The quantitative post-migration data showed that Iraqis are proficient in their ethnic languages, with attrition in literacy skills more than in oral abilities among the young generation participants. Self-reported language use patterns indicated that participants maintained their languages in all domains religion, friends and home. Older generations of Iraqis showed more positive attitudes towards ethnic LM than the younger generation. The qualitative data showed a multifaceted relationship between attitude, language use, identity and religion. The results also revealed the heterogeneity among the Iraqi participants and its influence on LM. Ethnic language, identity and religion are core values for Iraqis.

To sum up, the current research aims to fill a gap in the literature about Arab Jordanians in New Zealand and provide insights into Arabic LMLS in Christchurch, by investigating the Arabic and English language proficiency, as well as their language use in different domains and their attitudes. I predict that my research results will support Tawalbeh's (2017) findings for Iraqi Muslims. I expect to find a change over time in Arabic literacy skills among 1.5 and 2nd

generations and those who have been in the country for long time, i.e. 11-20 years and 21-30 years. I also expect the Arabic language to be used most in the home domain, followed by the religious domain, while English dominates in the friendship domain. Regarding their attitudes, I expect Jordanians to show positive attitudes towards both Arabic and English and I predict that the Arabic language will be a core value which is linked with other core values, such as religion, culture and identity.

2.5.6 LMLS research questions

The insights from the existing literature discussed in the sections above lead me to posit the following research questions, which will be addressed in the LMLS section of my study:

1. What is the Jordanians' self-reported language proficiency in English and their ethnic language/s? And what are the effects of demographic factors (gender, generation and LoR) on that?
2. What are the patterns of language use in different domains (home, friendship and religion)? And what are the effects of demographic factors (gender, generation and LoR) on that?
3. What are the attitudes of Jordanians towards both Arabic and English languages, identities and cultures? And what are the effects of demographic factors (gender, generation and LoR) on that?

There have been many LMLS studies which look at the relationship between language shift and attitudes. A novel aspect of my study is linking these two aspects with a variationist approach. The next part of this chapter will discuss the literature on language variation and change.

2.6 Theoretical Background and Literature Review on Language Variation and Change (LVC)

2.6.1 Introduction and Approaches to LVC

The study of language variation and change is often considered to be the core of the sociolinguistic enterprise (Chambers, 2002). Variation is defined by Chambers (2002) as "systematic variability between different ways of saying the same thing" (p. 205). Each way of speaking is a variety. In a more accurate way, a variety may be defined as a "set of linguistic items with similar social distribution" (Hudson, 1996, p. 22). So, English, French, London English, the English of football commentaries, the language or languages used by a particular person can be defined as 'varieties of language' (Hudson, 1996, p. 22). Languages vary from one place to another, from one group to another, from one individual to another, and from one situation to another.

Beginning with the pioneering work by Labov in the 1960s, variationist sociolinguistics focuses on vernacular dialects or unmonitored speech, by conducting sociolinguistic interviews to gather examples of speech data through linguistic tasks that are believed to offer varying degrees of linguistic monitoring, including different styles like reading a word list, minimal pairs, reading a passage and conversations (Labov, 2001b). The purpose of the interviews is to elicit more spontaneous and unconscious speech will reveal the norms of the vernacular (Labov, 1984). For these reasons, I conducted interviews with Christchurch Jordanians to elicit their unconscious speech, which would allow me to examine their production of two consonants and three short vowels.

Labov, who is widely regarded as the founder of the discipline of variationist sociolinguistics, studied a sound change in progress on Martha's Vineyard and found a significant correlation between the degree of centralization of specific vowels and the extent to which participants identified with life on the Island and desired to remain there (Labov, 1963). Labov (1963) said that "one cannot understand the development of a language change apart from the social life of the community in which it occurs "(p. 275).

In similar fashion, Labov (1966) demonstrated in his New York City study that variation between individuals and in their speech was not accidental, but systematically conditioned by social factors such as social class, sex, age, and style, in predictable ways. In his innovative

study, Labov (1966) found that post-vocalic (r) is a prestige marker in New York City English. His outcomes illustrate that (r) production increases with consciousness (the amount of attention paid to speech), social class and formality of speech. Labov (1966) called the social effect 'prestige awareness'. Whether a particular variety of language is considered prestigious or not is determined by the social evaluation the upper class gives to it. However, what might be considered beautiful and acceptable in one society might not be so in another. Labov (1966) has emphasised the continuum of stylistic variation. For example, one can observe that specific linguistic variables vary as the speech gets more or less formal. More formal styles have a more careful attention to phonetics than those of casual styles, or vice versa. Labov (1966) discovered that the formality of speech increases when speakers use more of the standard postvocalic (r) variant and referred to this as a prestige style. He argues that interlocutors are more alert to careful styles, for instance reading a passage or lists of minimal pairs, and they have a habit of using the more standard variants when they pay more attention to their speech.

Labov (1963) developed the notion of the linguistic variable to capture variation quantitatively. Labov (1972) defined the linguistic variable as a set of alternative ways of saying the same thing. A sociolinguistic variable therefore, is a socially important linguistic variable. Furthermore, "It is a linguistic element (phonological usually, in practice) which co-varies not only with other linguistic elements, but also with a number of extra-linguistic independent social variables such as social class, age, sex, ethnic group or contextual style" (L. Milroy, 1987, p. 10). An example of a sociolinguistic variable is intervocalic /t/ in English (for more literature see section 2.7.2), where the intervocalic /t/ might be pronounced in different ways, such as FLAP, GLOTTAL STOP and DROPPED. These options are collectively called the variants of the variable intervocalic /t/ and the variants are not always binary choices, they can be continuous as well, like vowels.

The influence of social factors such as gender, education, age, social class, social network and attitudes on the choice of linguistic variants was the keystone for studies like Trudgill (1974) and J. Milroy and Milroy (1978). .

Trudgill (1974) studied the pronunciation of the final consonant (ng) in words like *walking* and *running* in Standard British English and in Norwich, where the pronunciation *walkin* and *talkin*, is frequently heard as if there was simply 'n' on the end. His research revealed that an increase in social class and formality result in a greater tendency to use the standard variant. Social variables affect the possibility of linguistic variant selection and vary from one speech

community to another, for the reason that each society has its particular social norms (Trudgill, 1983).

J. Milroy and Milroy (1978) departed from Labov's notion of sociable variables and developed a new view of social reality. They investigated the correlation between the integration in the community and the way people speak, and they measured each person's use of several linguistic variables and the influence of social factors on them. They argued that increases in the use of certain linguistic features of a vernacular were caused by increases in the strength of the social networks. L. Milroy (1987) studied LVC in terms of social networks between individuals in a speech community and classified social networks into three different orders: friends, friends of friends, and indirect relationships between members of a community (for more information about social networks see section 3.2.4).

All of these studies have contributed to my decision to look at the influence of social factors, such as gender, generation, length of residence, occupation and attitude on the realisation of the linguistic variables studied in this thesis (ING, intervocalic /t/, and the DRESS, TRAP and KIT vowels).

Some sociolinguists have treated style as an independent variable like gender, age, social class and ethnicity that influences and clarifies linguistic variation. Labov (1966) established a model of style shifting, highlighting that language not only differs between social groups, but also within persons according to the various activities involved in a sociolinguistic interview.

Although being criticized by many sociolinguists, Labov (2001a) confirms his primary perspective on stylistic stratification and states that:

> Communities display both social stratification and stylistic stratification with the same variable. For a stable sociolinguistic variable, regular stratification is found for each contextual style; and conversely, all groups shift along the same stylistic dimension in the same direction with roughly [similar] slopes of style-shifting (p. 86).

Other views of style have suggested that attention to speech alone does not give enough analysis for all types of style-shifting. Bell (1984), Eckert (2008) and Giles and Powesland (1975) and others have questioned the use of attention as the sole correlative of style shift (Gal, 1979). Also, there are some cases where attention increases rather than decreases as a speaker shifts to less formal speech. The framework of *speech accommodation theory* defines style in terms of identity motivations. Speakers are perceived as discussing their identity continuously by linking

themselves (converging) with groups they respect, and separating themselves (diverging) from groups they wish to be different from. So, speakers might converge towards an interlocutor and their speech becomes more similar to the way he/she is speaking, or they might diverge away from the interlocutor's speech and socially distance themselves (see Giles & Powesland, 1975).

Bell (1984) argued that stylistic aspects of language variation had not been addressed satisfactorily in sociolinguistic theory. He conducted research on the speech of radio news broadcasters in New Zealand. The research concentrated on two radio stations which shared the same recording studio and the same newsreaders. One station, National Radio, involved an audience from higher socioeconomic class. The other, a local community station involved an audience from lower socioeconomic class. Bell's analysis of the newsreaders' speech showed that they produced different styles based on the radio audience. Bell highlighted that because the topic, speaker, and speech exercise were the same, the most plausible reason for the variation was that the newscasters were accommodating their speech in the direction of that of their audience.

The *audience design* approach to style shifting is closely connected to Giles and Powesland (1975) theory of speech accommodation, where speakers can use convergence to mitigate social distance, establish solidarity, or offer a friendly atmosphere, while divergence can increase social distance and could be used to establish power or show that one speaker is more educated than the other.

Speakers can also plan their speech for an audience not present in the moment of the conversation (Bell, 1984). This method of changing style for an absent audience is further explained in the study of the audience design identified as *referee design* (Bell, 1984). Since audience design is mainly responsive, referee design captures the initiative dimension of style-shifting.

More advanced work in the field concentrates on the speaker's identity and relationships with interlocutors as the main motivators for style shifting (see Coupland, 2007; Schilling-Estes, 2004), leading ultimately to work that focuses on the social meaning of variables and views styles as directly connected with identity (Eckert, 2012). Eckert (2012) mentioned three waves of sociolinguistic variation studies:

> The first wave of variation studies established broad correlations between linguistic variables and the macro-sociological categories of socioeconomic class, gender, ethnicity, and age. The second wave employed ethnographic methods to explore the

> local categories and configurations that inhabit, or constitute, these broader categories. … the third wave, arguing that (a) variation constitutes a robust social semiotic system, potentially expressing the full range of social concerns in a community; (b) the meanings of variables are underspecified, gaining more specific meanings in the context of styles, and (c) variation does not simply reflect, but also constructs, social meaning and hence is a force in social change (p. 87).

Eckert's theory is, therefore, to interpret LVC not only in terms of separate social variables and linguistic processes, but also through the many implications of their wider social significance (Albirini, 2016). According to Eckert (2012), language variation is the result of people's attempt to index different social meanings through the language. For example, through different patterns of speech, people may index their social class, age, gender, attitude and identity. In certain contexts, certain language features become associated with certain social meanings, and these meanings vary from contexts to context.

According to Hay and Drager (2007)**,** variation occurs at every level of linguistic representation, and the phonetic realization of any word can be influenced by different factors, such as the speaker, the topic, the addressee, linguistic and social context, intention of the speaker and many other factors. "Social identities are transmitted and constructed simultaneously with linguistic content" (Hay & Drager, 2007, p. 90). (For more information about identity see section 2.9.3).

To sum up, people vary in their speech in a systematic way because of different reasons. First, the social demographic factors, such as age, gender, education, social class, formality of speech and strength of social networks. Second, the topic, the context and the audience: whether the audience is present or absent, people try to accommodate to it and produce native-like variants or diverge from it and produce non-native-like variants. Third, indexicality or social meanings: people index different social meanings through their use of different variants, for example they might index their age, social class, education, generation, length of residence, occupation, attitude, culture and identity.

I am investigating the effect of social factors (gender, generation, LoR, occupation and attitudes) on the production of certain consonants and vowels in English language. And, looking at indexicality and the production of these sounds among the Christchurch Jordanian speakers. I predict that Jordanians will index their identity and attitudes in their production of these variables (for more discussion see section 5.3.4).

2.6.2 Examples of Language Variation and Change in the Arabic language in Jordan

The field of LVC has inspired some Jordanian researchers to study the relation between linguistic variation in Jordanian Arabic and social variables such as gender, age, origin and occupation (see Abdel-Jawad, 1981; Al-Ali & Arafa, 2010; Al-Khatib, 1988; Al-Wer, 1991, 1999; Al-Wer, 2002). The following paragraphs provide an overview of empirical LVC research on the Arabic language in Jordan. The overview is intended to be representative rather than comprehensive.

Abdel-Jawad (1986) investigated the variation in the phonological variables /q/, /θ/, /ð/, /D/ and /k/ in the speech of individuals in the cities of Amman (the capital) and Irbid in Jordan. His study found that people living in Irbid use less urban variants than those living in Amman, and females in both cities use urban variants more commonly than men. Al-Ali and Arafa (2010) studied the influence of gender and educational settings on patterns of variation in the use of /θ/ and /dʒ/ in Jordanian Arabic. They conclude that male and females' speech behaviour depend on social priority. Women are driven by the concept of prestige and softness, while men are driven by masculinity and toughness.

Al-Khatib (1988) studied the phonological variables /Q/, / dʒ /, /D/, / θ /, /K/ and /a/ in Jordanian Arabic in Irbid City. He did interviews with 38 participants from two rural groups (the Horaniis and the Fellahiin), who spanned three age groups, two origin groups, two genders and three educational groups, and he analysed his data quantitatively. The results showed that the linguistic variation across the speakers was systematic and rule-governed. One linguistic variable / dʒ / was phonetically conditioned, and most of the others were lexically conditioned. Moreover, all linguistic variables significantly correlated with the social factors to varying degrees, social motivation was found to encourage variation, and the gender of the speaker was the most significant factor influencing the linguistic behaviour of the Jordanian informants. Men and women in most cases were innovative in different directions. Furthermore, identity or origin were also found to be significant, the Fellahi group favouring innovation more than the Horaniis, who looked to be more faithful to their linguistic norms.

Al-Wer (1991) studied the influence of age and education on the use of /θ/, /D/, /q/ and /dʒ/ variables in women's speech in Jordan. She reported that young and educated women with connections outside their local networks accommodate their speech to non-local variants more regularly than older and less educated women who are exposed to local network pressure. Al-Wer (1999) explored linguistic and social correlates of sound diffusion in the phonological

variables /θ/ and /D/ in the speech of Jordanian women, and her results showed that interdental variables display the biggest amount of variation compared with /D/; they have a tendency to change in the direction of stop variants by replacing the /θ/ and /D/ to [t] and [d].

2.6.3 Variation among non-native speakers of English (NNS)

Variationist sociolinguists have recently focused on their studies on the acquisition of variation among non-native speakers of English NNS in various contact settings, such as immigrant communities. Variationist sociolinguistic research demonstrates that variation in the speech of NNS is also systematic and not arbitrary. A particular area of interest in recent years has been variation in NNS speech vs NS patterns of variation. In other words, how far or how much do the NNS replicate the patterns of variation found in the vernacular of NS.

Immigrants who arrive from non-English-speaking countries have the option of maintaining their ethnic languages as well as acquiring the host language and its local variety. The acquisition of the host language and its local variety may be the consequence of two related processes; *language acquisition and language shift*. Language shift happens when migrants gradually avoid using their ethnic language and accommodate to the host language (see sections 2.1 & 2.2). This shift towards the host language may be completed within three generations of migration (Holmes et al., 1993).

Studies of L2 sociolinguistic variation have often revealed that non-native speakers adopt different linguistic patterns to those used by L1 speakers (Gnevsheva, 2015; Schleef et al., 2011). Schleef et al. (2011) compared the variation in the speech of Polish and locally-born adolescents in the UK in the use of the variable ING and discovered that migrant teenagers not only acquired some target-like linguistic and social constraints but also presented novel ones. This suggests that NNSs may not be restricted by the sociolinguistic variation present in the L1 society. Gnevsheva (2015) also said that NNS may not only use the sociolinguistic variation used in the NS community, but may also use a continuum from 'native-like' to 'non-native-like' for further identity work.

According to Drummond (2011), variation in a second language involves both linguistic and sociolinguistic variation. The former is mostly concerned with the acquisition of native speaker forms or the acquisition of "linguistic competence", and has been referred to as "the vertical

continuum" or "Type 1 variation", while the latter is referred to as "the horizontal continuum" or "Type 2 variation", and involves the acquisition of NS patterns of linguistic variability, that is "sociolinguistic competence" (p.281). Drummond (2011) confirmed that these two areas of investigation are not entirely separate. Gnevsheva (2015) reported that NNS may also use a continuum from 'native-like' to 'non-native-like' for further identity work, which she called "Type 3 variation" (pp. 11-12).

Schleef et al. (2011) suggest that the acquisition of variation is complex and would certainly affect the patterns of acquisition of variation among NNS of English language, which means that in contact situations NNS may show similar tendencies in the acquisition of variation. Acquisition of variation is influenced by belonging and social networking and by migrants' attitudes towards the host country and its language (Schleef et al., 2011). This means that they adopt linguistic patterns that are known to be variable: for instance, Adamson and Regan (1991) investigated the use of the variable ING by NNS of American English and mentioned that female speakers used [iŋ] more often than males and even more in formal speech, which is comparable to the NS pattern.

To sum up, this study aims to investigate the acquisition of variation by Jordanian migrants in Christchurch. I have decided to investigate the two consonant variables ING and intervocalic /t/, and the three NZE front short vowels KIT, DRESS, and TRAP. The reason behind choosing these variables in my study are because these variables are 'salient variables[5]' in NZE (Hay, Maclagan, & Gordon, 2008), and the ING variable is considered to be a stable variable, which means that the NS-patterns of variation for this variable are well-documented, including variants and the social constraints conditioning the distribution of the ING variable across NS of English. I am giving the example of the salience of the glide between two low vowels in the footnote because intervocalic /t/ also appears between two vowels.

Investigating the productive variability and social meanings of the two consonants and the three NZE short front vowels in Jordanians provides valuable insights into NNS acquisition of

[5] "Salient Patterns are structurally more regular, occur consistently, and are easily noticeable, so the learner can procure them faster. Salience is also a tangible property of phonetic segments: a palatal glide is more salient between two low vowels than between two high vowels, since the formant transitions cueing the glide are much more visible between low vowels, these having markedly different spectra" (Rácz, 2013, p. 32).

variation and allows us to look for correlations between attitudes and the use of different variants. This study permits us to explore what social meanings are attributed to particular variants and whether they signal their identities in their production of these variables or not.

2.7 Literature on the variables under investigation

2.7.1 The ING variable

The literature on the ING variable will be discussed in the following three sections. I start by presenting the distribution of this variable and its main variants in English speaking countries, such as the United States, the UK, Canada and Australia. Then I discuss the use of this variable and its main variants in New Zealand English. And finally, I look at research on this variable in non-native speakers of English and the main variants non-native speakers produce. This variable will be investigated by focusing on the social demographic factors and their effect on the production of variable ING in my thesis and in this literature review.

2.7.1.1 The ING variable in different English-speaking countries

ING is one of the most well-known sociolinguistic variables, having been investigated in the production of a wide range of English speakers and found to have relatively stable phonological, social and grammatical constraints across many communities (Hazen, 2006). As Hazen (2006) points out, "The ING variable is one of the consummate sociolinguistics variables. Its complete story involves both diachronic and synchronic variation, both internal and external factors" (p. 583).

The two main variants usually investigated for the variable ING are the velar [iŋ] and alveolar [in] variants which differ in the final nasal segment. The variation between these two variants is stable in most English dialects (Wagner, 2008). However, ING variants are not limited to velar versus alveolar nasals in unstressed syllables; there are other possible patterns which occur in English dialects with different distribution patterns across speech communities, as will be mentioned in the next paragraphs.

The [in] variant of the variable ING is often called "g-dropping" as in '*walkin* or *singin'* (Bell & Holmes, 1992b). Labov (1966) described ING as "a case of stigmatization without change" (p. 394), in that it has been in use since the 1950s with almost the same variants and social

associations. Prior research on ING variation has showed a relatively stable set of linguistic and social constraints operating cross-varietally, as discussed in Labov (2001b) and Hazen (2006).

The emphasis has usually been on the two variants [ɪn] and [ɪŋ] in unstressed syllables and in multisyllabic words. As for the demographic factors, the velar nasal [iŋ] tends to be found in formal or careful speech and is documented as a high status, standard variant preferred by females (Labov, 1990). On the other hand, the alveolar nasal [ɪn] is recognized as a non-standard or lower status variant, occurs in informal conversation, and is preferred by males (Labov, 1990). The difference between velar nasals and alveolar nasals reveals social and stylistic stratification (Trudgill, 1974).

There are social constraints at work in ING realisation that look consistent across studies, such as gender, socio-economic class and style. The alveolar variant is preferred by speakers in the lower classes and the velar variant is favoured more by the higher classes. There are also stylistic effects: the alveolar variant is used more in casual speech and the velar variant is produced more in careful speech (Bell & Holmes, 1992b; Hazen, 2006).

The ING variable has been studied in many English-speaking places. Identical patterns for the ING variable have been reported for a wide range of English-speaking communities: Fischer (1958) looked at a semi-rural village in New England, Wells (1982) carried out research in the UK, Trudgill (1974) in Norwich (England), Schleef et al. (2011) in Edinburgh and London, (H. B. Woods, 1979, 1991) in Canada and (Bell & Holmes, 1992b) in New Zealand.

Fischer (1958) was involved in a study in child-rearing in a semi-rural New England village with his wife, where they recorded 24 children. Certain variations in the children's speech attracted their attention, particularly the variation between [in] and [iŋ] for the present participle ending. They conducted interviews in their house in the office, with equal numbers of boys and girls, who were divided into two equal age groups, ages 3 - 6 and 7-10. They had been observing the children periodically for eight to ten months and most of the children were fairly well acquainted with them. Three types of text were gained: (1) children were asked to make up stories starting out from short sentences given by the researcher, (2) older children were asked to answer a formal questionnaire, (3) informal interviews were also conducted with a few of the older children, where they were asked to recount their recent activities. Fischer (1958) stated that "[ɪŋ] is regarded as symbolizing female speakers and (in) as symbolizing males" (p. 484). In his study he found stylistic and social variation in children aged from 3 to 10 years. Girls produced more [iŋ] than boys, and a "model" boy was different from a "typical" boy. The

"model" boy almost exclusively produced the [iŋ] ending, while the "typical" boy used the [in] ending more than half the time. “The first boy was regarded by his teacher and others as a "model" boy; he did his school work well, was popular among his peers, reputed to be thoughtful and considerate. The second boy was generally regarded as a "typical" boy; physically strong, dominating, full of mischief, but disarmingly frank about his transgressions” (Fischer, 1958, p. 484). His data also showed greater use of [in] in the more casual interview setting than in the formal interview.

Trudgill (1974) studied Norwich speech to find out how and why people's ways of speaking varied. One of the variables he investigated was the final consonant in words like *walking* and *watching*. In standard British English, speakers produced a velar nasal variant [iŋ]. However, in Norwich speech, the production of *walkin'*, ‘*watchin’*, the alveolar variant is frequently heard, as if there was simply '*in*' on the end. The results reflected those found by Labov (1966) in New York City: the higher the socioeconomic status of the speaker, the more frequently (s)he used the standard variant [iŋ]. Trudgill (1974) also found that the [in] variant was produced seven times more in casual speech than when reading word lists. Moreover, he found that in all social classes, the more careful the speech, the more likely people were to produce [ɪŋ] rather than [in]. Middle-aged speakers (40-49 years) typically used the velar variant more than any other age group, and men used the less prestigious [in] more frequently than women across all social classes. As a result, the alveolar [in] viewed as the non-standard, informal, non-prestigious variant, while the velar [iŋ] was viewed as the standard, formal and prestigious variant.

In Canberra (Australia), Wald and Shopen (1981) found that women used 16% [in] for ING while men used 24%. In Sydney, Horvath (1985) reported that male speakers used the [in] variant 23% of the time, women 15%, and working class speakers produced 21% [in] compared to 15% for middle class speakers. Generally, it is noteworthy that in Australia, the occurrence of ING reduction (i.e. [in]) appears to be much lower than in the American and British studies (Bell & Holmes, 1992b).

So far, the discussion has concentrated on the [ɪn] and [ɪŋ] variants of ING. These are indeed the most common variants across varieties of English, but ING also varies in other ways among NS of English. In certain areas of the UK, there is another variant which found for ING often referred to as ‘velar nasal plus stop’ [ɪŋg] (Wells, 1982). This variant is common in northern regions of the UK and has been recognised in some regions as a local prestige variant (Mathisen, 1999). In Manchester English, [ɪŋg] is found among young adult speakers in formal speech and considered a “posh” variant (Schleef, Flynn, & Ramsammy, 2015).

K. Watson (2007) mentioned that Liverpool English is similar to other accents in the north of England in that the /g/ in (ng) clusters is maintained. For example, the speaker realises *along* as [əlɒŋg]. In the (ing) morpheme, forms with the velar nasal and plosive are found, as in *singing* [sɪŋɪŋg], but a realisation of [ən] is also likely (e.g., *sing[ən], walk[ən]*) (p. 352).

In the Canadian English of Ottawa speakers, three variants of ING were found: [in], [iŋ] and [ən] (H. B. Woods, 1991, 1993). The [ən] pronunciation was very infrequently used among Ottawa speakers, while the [in] variant was the most frequent in the more casual styles (pictures, reading and free speech), and the [ɪŋ] variant is the most frequent variant for all socio-economic and sex-age groups in the minimal pairs and word lists. Moreover, the study discovered that the younger age group consistently produced a higher frequency of [in] than the older group. H. B. Woods (1993) suggested that the [in] variant will increase in Ottawa while the use of [ən] will decrease.

Many studies of the variable ING excluded monosyllabic verb forms such as in *sing* or *bring* from their analysis and focused only on unstressed syllables such as in 'walking' or 'singing'. Furthermore, they excluded *thing* words such as *something, nothing, everything and anything* because in *everything* or *anything* the last syllable has secondary stress and the other two words *something* and *nothing* receive a greater amount of alveolar pronunciation than any other nouns of the same type (Abramowicz, 2007). However, in my study I am looking at the velar-nasal-plus, and the *thing* words too, and therefore I am including all that was excluded above to see if there are any differences in the results or not. In the case of words like *anything, something, nothing* and *everything*, it appears that there is a fourth variant possible with the *thing* variable [ɪŋk], but that doesn't happen with words containing the ING variable such as '*walking'* and '*singing'*. This variant has been reported in some places in the UK, such as London, South East England and Leicestershire and has also been found in the speech of working class children in NZE (E. Gordon, 1998). So, ING has two variants [ɪŋ] and [in], whereas, *thing* has three variants [ɪŋ], [in] and [ɪŋk] (E. Gordon, 1998).

Australian and New Zealand varieties of English have an [ɪŋk] variant (Bell & Holmes, 1992b; E. Gordon, 1998) as well as some 'mainly southern' varieties of British English (Meyerhoff & Schleef, 2014; Wells, 1982). In Canberra city, Australia, (Wald & Shopen, 1981) found only very few instances of the [ɪŋk] variant (out of 1660 tokens of ING only 16 tokens were produced as [ɪŋk]). Shnukal 1978 cited in E. Gordon (1998), did a study in Cessnock in the north-west of Sydney. She built a corpus consisting of 466 ING tokens, and 277 tokens were of the *think* variant. She found that middle class speakers used the *think* variant less than the working class

speakers and more than the non-standard [in] variant for ING. She also discovered that the use of the [ɪŋk] variant increases as the age of the participant decreases.

To sum up, the above section presented a very explicit literature to the main variants [ɪŋ], [in], [ɪŋg], and [ɪŋk], which associated with ING variable in English speaking countries. In the next section I discuss some of the literature on ING and its variants in NZE.

2.7.1.2 The ING variable in New Zealand English

There has been little work on NZE ING, and those studies which looked specifically at ING variation in NZE tended to reflect the findings of overseas research (Bell, 2000; Bell & Holmes, 1992b; Hay, Maclagan, & Gordon, 2008). In terms of demographic factors, gender, social class, and style have all been shown to follow the usual patterns in NZE (Bell & Holmes, 1992b). Bell & Holmes (1992) described the process which reduces [ɪŋ] to [ɪn] as being like HDROP, "although it is less salient than the HDROP as a marker of vernacular style" (p. 237). Two linguistic variables were studied in their paper: the dropping of /h/ and reduction of [ɪŋ] to [in]. Dropping of /h/ or HDROP means the deletion of word-initial aspirate [h], for example in *hospital, house, here* and *hard.* In their analysis of interviews with 75 mainly working-class speakers, Bell & Holmes (1992) found little or no dropping of word-initial /h/. The modest mean level of HDROP across speakers was much less than found in Britain, but a little more than in Australia. Women used much less HDROP than men. HDROP was preferred by middle-aged and older Māori speakers, and not used by older Pākehā [European] women. Bell & Holmes (1992) found that gender and class were also very important factors affecting ING variation. They reported that men use the [ɪn] variant more than women, and middle class Pākehā women produced less [ɪn] than their working class counterparts. Furthermore, age was found to be significant, with younger speakers tending to produce more [ɪn] than the middle-aged and old speakers, but there were no ethnic differences found between Pākehā and Māori speakers. Bell and Holmes (1992b) concluded that the ING variable is a more common and constant marker than the HDROP, which keeps its social significance and resists change. Furthermore, Bell (2000) in his study Māori and Pākehā English, found that the two middle class speakers showed low production of vernacular [ɪn] with very few differences. He related the very low proportion of vernacular [ɪn] production in the interviews to the formality of the topics. Bell and Holmes (1992b) also reported that there is a third variant for ING in NZE referred to as 'velar stop [k]', but they didn't focus on it in their study. (Bell & Holmes, 1992b); Hay et al. (2008) showed

that the realization of ING in *-thing* compounds (i.e. *something, nothing, anything, and everything*) is associated with social class and stylistic effects as well. According to Hay et al. (2008), the third variant [ɪnk] i.e. *somethink*, tends to be used by younger lower-class women in New Zealand. In respect of style effects, the variant is likely to occur in conversation rather than in reading. In my study this variant [ɪŋk] was excluded from further analysis (for more information see section 3.10.1.1). The next section discusses some of the existing research on the use of ING and its variants among non-native speakers (NNS) of English.

2.7.1.3 ING variation in non-native speakers of English

Variation in NNS speech has recently attracted the attention of researchers in variationist sociolinguistic work. One increasingly common approach is to compare patterns of variation in NNS with patterns of variation among NS (e.g., Drummond, 2012; Schleef et al., 2011; Za'rour, 2018). This means that NNS variation patterns are analysed to determine to what extent they replicate the patterns of variation found in the NS speech. Schleef et al. (2011) propose that NNS may be inclined to replicate, reinterpret, reject and even create constraints on variation that are meaningful to them. Drummond (2012) also says "there is research to show that individuals might consciously avoid acquiring native like pronunciation so as to reinforce their L1 identity" (p. 110). Furthermore, Schleef (2013) mentioned that speakers who need to acquire a second language (L2) need to learn more than grammar rules if they aim to achieve native-like skill levels; they must also master patterns of sociolinguistic variation found in the target language community. This knowledge will allow them to "produce frequencies of key variants similar to native speakers, and replicate similar linguistic and non-linguistic constraints on the variants" (Schleef et al., 2011, p. 208).

Schleef et al. (2011) investigated English language speech by the adolescent Polish migrants in the UK, particularly in Edinburgh and London. Schleef et al. (2011) investigated to what extent Polish migrants can acquire ING patterns of variation similar to those of native speakers, by comparing the ING patterns of variation in the speech of Polish migrants and their same age British peers at two high schools, one in Edinburgh and one in London. The participants were interviewed in friendship pairs to create the most casual atmosphere possible. The Edinburgh sample consisted of 16 Polish migrants and 21 teenagers born in Edinburgh. The London sample consisted of 21 Polish migrants and 24 teenagers born in London. The ages of Polish adolescents ranged from 12 to 18 years with a mean age of 14 years in both the London and

Edinburgh speakers. The length of time each speaker had spent in the UK ranged from 7 months to 5 years, with an average of 2.5 years in the UK. The topics discussed in the conversations were about (e.g., living in London / Edinburgh, hobbies, attitudes towards immigrants, school life, etc.), but the conversations were not restricted to these subjects and the speakers were motivated to talk openly about other topics as well. A short reading task of 17 sentences was also performed by the participants. The inclusion of both reading and conversation data allowed Schleef et al. (2011) to make some comparisons between differences in speech style.

The results showed three variants of ING ([ɪŋ], [ɪn], and [ɪŋk]) and indicate that the "Polish teenagers seem to be sensitive to the overall rates of the non-standard variant in the city they have moved to. Moreover, Polish teenagers also replicate some of the linguistic and social constraints found in the speech of the locally-born teens. In some cases, they partially replicate the constraint patterns found in the locally-born teenagers, and in other cases they introduce novel constraints unattested in the speech of their locally-born peers" (Schleef et al., 2011, p. 206). Edinburgh-based migrants do not use [ɪn] variant as often as their locally-born age peers, but they use them more often than native-born Londoners. The frequency of [ɪŋk] in Edinburgh and London among Polish adolescents is very similar (213 and 207) respectively. The relative consistency of this variant in the data suggests that 1) there is L1 transfer effect, and 2) the occurrence of an [ɪŋk] variant in London natives' speech (31 tokens) does not seem to dramatically affect its use by the Polish migrants. Edinburgh natives didn't produce the [ɪŋk] variant at all, yet the Polish adolescents in Edinburgh used it as frequently as their London counterparts.

For the Polish-born teenagers, Schleef et al. (2011) stated that ING is a work in progress, it is currently not a stable variable for these speakers and it is a variable which is undergoing change as they learn to acquire the local norms. They mentioned that ING is not a stable variable for the Polish teenagers because of the effect of lexical frequency. Lexical frequency was found to be a significant factor among just the Polish-born London teenagers and the correlation was negative, indicating that the [ɪn] variant is more likely to exist in high-frequency words. However, Schleef et al. (2011) predict a lexical effect for the London-born teenager but then found that the results did not yield such an effect.

In similar fashion, Drummond (2012) examined the variable acquisition of native speaker-like of English patterns of the ING variable among Polish migrants, living in Manchester, UK. Drummond (2012) carried out interviews with forty Polish adults who had grown up in Poland. They had come to England as adults, when they were between the ages of 18 and 40, and they

had at least basic proficiency in English before coming to England. The majority of them were living in the Manchester area at the time of the study. The study identified four variants of ING found among Manchester speakers ([ɪŋ], [ɪn], [ɪŋg], [ɪŋk]), and indicated that variation between these variants is as stable in an L2 context as it is in an L1 context, with some of the expected L1 factors appearing as statistically significant constraints. Two social factors were found to be statistically significant in the analysis: gender and future plans. The gender difference was quite striking. Of the 16 speakers who produced [in] 11 were female and 5 were male. This difference represents a deviation from what is usually expected in L1 speech, where several studies have shown the opposite to be the case. 'Future plans to return to Poland' on the other hand, appear to encourage the use of ING variant [ɪŋk] that signals the loyalty to the L1 identity. The standard [ɪŋ] variant was the most common variant overall, accounting for 70.3% of the total number of ING tokens. The second variant [ɪn] was the main focus of the analysis, and although it accounted for only 6% of the total, it was produced by 16 of the speakers. Drummond (2012) also found an [ɪŋg] variant among the NNS Polish migrants in Manchester and reported that verbal forms favour [ɪŋ] and nouns favor [ɪŋg] or [ɪŋk].

Za'rour (2018) investigated the English speech of Arab migrants, particularly Levant communities in Wellington, New Zealand. She studied the patterns of acquisition found among Arab migrants in Wellington for two stable variables: coronal stop deletion (CSD) and (ING). The [ɪŋ] variant of ING exists in English but not in Arabic, and is thus more likely to be challenging for native speakers of Arabic (Kalaldeh, 2016). Za'rour (2018) defined CSD as the alternation between retained and reduced final consonant clusters, for example, */wɛst/* vs. */wɛs/*. She studied variation in non-native varieties by analysing how far non-native speaker patterns of variation replicate constraints on variation found among native speakers of a target variety. She focused on finding the linguistic and the non-linguistic constraints (gender, age and style shifting) that condition variation in the production of ING and CSD among native speakers in the New Zealand Spoken English Database (NZSED) and among Arab migrants in Wellington.

She used two data sets in the form of two corpora. One corpus represented the NZ/native speech, and the other represented non-native speech. The NZSED corpus had been established in 2002, comprising a sample of 72 self-identified Pākehā and Māori speakers. These speakers were audio recorded performing a variety of activities included interviews, a map task (turn-taking in the description of a path to a location), sentence reading task and minimal-pair reading task. The non-native corpus consisted of interviews (separate possible themes or conversation

prompts for discussion) with 21 Arab migrants residing in Wellington, which were conducted by the researcher herself.

The results showed that Arab migrants seem to acquire the main significant constraints that condition ING variation. Differences between the old and middle-aged Arab migrants and young Arab migrants were found: young Arab migrants seem to display grammatical constraints that are more similar to native speakers' constraints on ING variability, and they stylistically used articulatory constraints to convey important social indexicalities more than the older Arab migrants do, but sometimes young Arab migrants were also found to diverge from the native speakers' norms. Old and middle-aged Arab migrants were found to display strong transfer of native speaker constraints, but they didn't look to be using variation in the L2 stylistically.

Za'rour (2018) found that young Arab migrants, unexpectedly, diverge from native speaker norms and exhibited weak acquisition of native speaker articulatory constraints on CSD, while they showed strong acquisition of native speaker grammatical constraints for the variable ING. She suggested that young Arab migrants are likely to be using articulatory constraints in the L2 stylistically, to convey important social indexicalities.

To sum up, previous studies of the ING variable have shown stable social and stylistic conditions across English communities around the world, which form the patterns of variation between [ɪn] and [ɪŋ] variants of ING. But ING also varies in other ways across NS and NNS of English. In certain areas of the UK, there are another two variants for ING, often referred to as 'velar nasal plus' [ɪŋg] and 'velar stop' [ɪŋk].

My own study of the variable ING will be based on a quantitative and a qualitative analysis of 666 ING tokens. The results of an auditory analysis of the realization of the ING variable in word-final and word-medial positions (*e.g., 'singing' and walking*) will be presented. It is very important to study the variable ING among L2 learners of English, such as the Christchurch Jordanians, to determine what social factors influence the nature of ING variation and to what extent the patterns of ING variation being acquired by Jordanian speakers are similar to the patterns exhibited by NZE native speakers. My study also investigates if the use of particular ING variants can be predicted by the speakers' attitudes.

2.7.2 The Intervocalic /t/

2.7.2.1 T voicing in NS varieties of English

T voicing was described as “one of the most striking characteristics of American pronunciation to the ears of a non-American” (Wells, 1982, p. 248). Wells (1982) states it sounds to English speakers like a /d/ rather than a /t/. Wells (1982) mentioned that intervocalic /t/ could be heard “in certain casual styles in Britain accents ranging from RP to Cockney”. He didn’t say a lot about Southern Hemisphere English, but did note T voicing as arising in the speech of younger Australians. He suggests that these occurrences are related to American influence rather than self-innovations.

T voicing does exist in other varieties of English, such as in Canadian English, British English, Australian English, Irish English and New Zealand English (Bayard, 1999; Holmes, 1995b; Wells, 1982; H. B. Woods, 1991). Although intervocalic alveolar FLAPPING is one of the distinguishing characteristics of American speech (Chambers, 1992; Malécot & Lloyd, 1968), it is noted sporadically in British English, and has been reported in many dialects of English, such as Australian, New Zealand, and Irish English (Bell, 1977; Holmes, 1994; Su, 2007). It occurs most frequently in intervocalic environments where an alveolar stop appears in an unstressed syllable which is preceded by a stressed one (Su, 2007).

Two analyses of FLAPS were conducted among American speakers of English by (Byrd, 1994). In the first, the frequency distribution of all oral and nasal FLAPS in the database was measured. The men were found to produce significantly more FLAPS than the women. A second analysis was done on the phrase "suit in" and the word "water", which were read by all speakers. Word-medial /t/ in the word “*water”* was tapped by 99% of Byrd’s (1994) participants. While, there was no effect of sex or dialect on the frequency of the word-medial FLAPS in "*water*", sex was found to have a significant effect on the frequency of FLAPS in the phrase "suit in". Only 9% of the women flapped in contrast to 19% of the men did.

Patterson and Connine (2001) investigated FLAPS as the standard pronunciation of medial /t/ in American English compared to other allophonic variants, such as [t] or GLOTTAL STOPS. They used conversation speech database to perform a statistical analysis on the frequency of occurrence of medial FLAPS. Their results confirmed the dominance of FLAPPING in American English. Patterson and Connine (2001) also found interesting effects of morphological complexity and lexical frequency on FLAP production in American: morphologically complex words (e.g., waiting) and low frequency words were less likely to be produced with a FLAP

variant than morphologically simple words (e.g., quota) and high frequency words. A second analysis investigating vowel length preceding to medial /t/ and medial /d/ exposed that the vowel preceding medial /d/ had a tendency to to be longer, even though both stops were produced as a FLAP.

H. B. Woods (1991) observes that intervocalic /t/ is well established in Canadian English. In his study, H. B. Woods (1991) investigated the social differentiation and stylistic variation of English in Ottawa, Canada. An hour-long interview was conducted with 100 speakers, using a set format to elicit five styles of speech. The five contextual styles ranged from the most formal Minimal Pairs, to Word List, Pictures, Reading, and Free Speech. H. B. Woods (1991) examined six phonological variables: (t), (ntV), (-ing), (tj, dj, nj), (hw) and (ɒ). He followed Labov (1966) and Trudgill (1974) in collecting, analysing, and presenting his data. The question was whether participants differed in their speech patterns and to what degree, in accordance with the tasks they were asked to implement; and whether the variation in use and style was related to age, gender and socioeconomic class.

H. B. Woods (1991) reported that all the phonological variables which were analysed in the study displayed a greater degree of stylistic variation than of social differentiation and the difference was most extreme for the /ɒ/ variable. And at the same time, there were some infrequent patterns of stylistic variation for some variables, in the production of some social classes, such as the Lower Upper class who voiced medial [t] more frequently in their Reading style than in their Free Speech style. Female speakers showed the lowest frequency of /t/ voicing throughout the entire range of styles, while young male speakers regularly had the highest /t/ voicing rate. This pattern recurred frequently in the study. H. B. Woods (1991) concluded that "the variety of Canadian English spoken in Ottawa, obtains a great deal of its uniqueness by exercising its choice between British and American variants" (p. 148). In the next section, I show different studies and the variants of intervocalic /t/ in NZE.

2.7.2.2 Realisations of T in NZE

It has been recognized for some time that an increasing number of people of New Zealand English are producing what sounds like a voiced /t/ in particular linguistic situations. This realisation occurs in intervocalic position before syllabic [l], as in *little*, before an unstressed syllable, as in *matter*, and at word boundaries, as in *get off* (see Bauer & Warren, 2004). Holmes (1997c) mentioned that the sound (t) had proved to be a very productive area in research and

could be considered as a sociolinguistically sensitive sign of social and cultural influences on the language. She suggested that voiced patterns of intervocalic /t/ in words, such as *better* and *matter* reflect the influence of American English on NZE and the GLOTTALISED patterns of final post-vocalic /t/ reflect the influence of British English on NZE. The GLOTTAL STOP in English is "a socio-phonetic variant, since its frequency of occurrence depends on social as well as phonetic environments". Holmes (1997c) noted that "these changes resemble vernacular changes in some respects, but prestige changes in others" (p. 148), and thus demonstrate how vernacular changes become recognized in the standard languages through a combination of internal and external influences.

There has been considerable research surrounding the realisations of /t/ in New Zealand English (Bayard, 1990, 1999; Bell, 1977, 1984, 1990; Docherty et al., 2006; Evans & Watson, 2002; Hay & Foulkes, 2016; Holmes, 1994, 1995a, 1995b, 1997c). Bell's (1977) PhD research provided evidence for the existence of T voicing in the speech of New Zealanders. His results clearly showed that it is a genuinely variable rule in NZE, and that the variability is socially significant. His study focused on demonstrating that speakers shift their speech style in response to their audience. He analysed the speech of male Radio New Zealand news readers who were reading on a commercial station compared to the more prestigious national network station and discovered that on the commercial station, where the target audience was more 'working class', more t-FLAPPING was used than in the prestigious national network station. He concluded that the audience is clearly a factor influencing speaker's speech style (Bell, 1990).

Bayard (1990) examined /t/ in word-final position in the reading passages and word lists of a sample of New Zealanders recorded in 1980s. He suggested that the use of a GLOTTAL STOP in this environment is a vernacular change in progress. His study argued that change was influenced by social and linguistic factors. He reported that GLOTTAL STOPS were clearly a feature of the speech of younger New Zealanders, they occurred significantly more frequently in relaxed conversation than in interview style, and in working class speakers more than in middle class participants. Young women were found to be playing an important role in leading change in this feature. While there were clear differences between young and middle-aged women, there were no age difference between males.

Holmes (1994, 1995a, 1995b, 1997a) followed Bell (1977, 1990) in her investigation of the T voicing in NZE. She did a study examining the distribution of t-FLAPPING with speaker variables such as age, gender, and social class in NZE (Holmes, 1994). While Bell's research focused on people's "reading style", Holmes (1994) extended the study of t-FLAPPING to "speech style" and

to two different styles of speech, conversations and interviews. Her data was taken from the Wellington Corpus of Spoken New Zealand English (WCSNZE). All participants in the WCSNZE were speakers of NZE, described as people who were born in New Zealand or arrived in New Zealand before the age of ten years. The corpus contains women and men from a range of different age groups, and includes speakers from different social and ethnic backgrounds. Holmes (1994) selected the sample from the Wellington Corpus to allow contrasts to be made on the dimensions of social class, gender, speech style and age. She discovered more frequent use of t-FLAPPING in younger speakers than middle aged speakers. More t-FLAPPING was also used by working class than middle class speakers. And the distribution of these variants varied between different social groups. The difference in the levels of T FLAPPING for working-class Pākehā participants in the young and middle-age groups is noticeable. T Voicing is favoured by men and disfavoured by women ($p < 0.001$). When she looked at the interaction between age and gender Holmes (1994) found that young women use most T FLAPPING and that middle-aged women use the least. Male speakers, on the other hand, showed no age differentiation. She mentioned that T FLAPPING is a vernacular innovation and that working-class speakers would voice intervocalic /t/ more often than middle-class speakers. Regarding style variations, she found that middle-class speakers used the conservative aspirated voiceless variant more often than working-class speakers in the formal interviews, and she confirmed that T FLAPPING was significantly favoured in conversation and disfavoured in interview style ($p<0.025$), although the style difference is not as significant as age, class and gender effects. The result of her study confirmed that T FLAPPING was on the rise in NZE.

Holmes (1995b) also conducted another study, which examined the intervocalic /t/ in words like *letter* and *butter* and in phrases like *sort of* where the American influence is apparent, and the final /t/ in words like *let* and *but* and in phrases like *hot-dog* and *get lost* where the Britain influence is apparent. Her speakers where again chosen from the WCSNZE. She found that the two phonological variables of /t/ appear to be at different stages in the process of linguistic change and young middle-class women play an important role in the linguistic change of this variable. She reported that this result regarding the prominent role of women in leading this change contradicts Labov's claim that women tend to reduce their production of the vernacular features as social awareness of the change increases. She found that the intervocalic /t/ is significantly more frequent in the speech of young speakers than the middle-aged ones. Regarding gender and social class, she found that men tend to use significantly more T FLAPPING than women, and there is significantly more T FLAPPING in working class than in

middle class speech. In addition, young women were found to use significantly more T FLAPPING than middle age women, while male speakers showed no significant age differentiation. This suggested that young women were leading the change in this vernacular change in the middle class. Little difference was found between young working class women and middle class women, but there was a highly significant class difference in the speech of men. A class difference was also found in Holmes (1997c), who reported that working class women in New Zealand were more likely to use FLAP variants of /t/ than middle or upper class women. In terms of style, speakers were more likely to produce T FLAPPING in a conversation than in a formal interview and that difference was significant but not as big as age, class and gender differences. Holmes (1995b) concluded that T FLAPPING is a well-established variant of /t/ which has entered NZE through the vernacular style of working class speakers and the young women who led the change.

In Holmes (1995b), glottal stops were found to be significantly more frequent in the conversational speech of younger speakers than in the speech of middle-aged speakers and old speakers over the age of 70. They were also more frequent in the speech of women than men but the difference wasn't significant. It occurred significantly more in relaxed conversation than in interview style, and the social class difference was highly significant ($p<0.001$) with higher use by in the working class speakers than the middle class speakers. Young women were found to have the highest frequency of GLOTTAL STOPS, and male speakers showed no significant age differences in the production of the GLOTTAL STOPS. Young working class men and women produced significantly more GLOTTAL STOPS than the middle class speakers and in both groups it was women who were leading the change and the use of the vernacular variant

Docherty et al. (2006) did a study on the GLOTTAL STOPS among young speakers from the Canterbury Corpus of the ONZE (Origins of New Zealand English) archive at the University of Canterbury. They analysed a total of 1057 tokens from 60 young speakers and found that the use of GLOTTAL STOPS has been growing in the speech of younger NZ speakers, when compared to the results reported in Holmes (1995a) and Bayard (1990). They argued that NZE /t/ could be realised in a range of different ways, such as CANONICAL /t/, GLOTTAL STOP, FRICATIVE and AFFRICATE. Their findings showed that the GLOTTAL STOP in the phrase-final position is common in the production of young New Zealanders, particularly non-professional males. Their results support the findings of both Holmes (1995a) and Bayard (1990) that non-professional speakers produce more non-released/GLOTTAL STOPS forms than professional speakers. However, they didn't find any evidence to indicate that females are leading the change

as observed by Bayard (1990) and Holmes (1995a). On the contrary, males in their study produced significantly more non-released forms than the females.

Silby (2008) carried out an auditory analysis of t-FLAPPING in the speech of 202 NZE speakers, 97 female and 105 male. A total of 2286 tokens were analysed, an average of 11.3 per speaker. The study confirmed Holmes (1994) suggestion that t-FLAPPING is a change from below and that it has been underway for some time. Silby found that males rather than females are leading the change in both socio-economic groups, and the degree of FLAPPING is greater in the non-professional classes. Silby (2008) claimed in his study that the situation is changing, with the non-professional females now FLAPPING nearly as much as the non-professional males. The professional females as a group still produced the fewest t-FLAPS.

Hay and Foulkes (2016) analysed medial /t/ in data gathered from 98 speakers from the ONZE corpus, to address questions about the role of experience-based lexical representations and their possible influence on the time course of sound change in progress. Hay and Foulkes (2016) identified six variants in an auditory analysis of the /t/ variable in NZE. The variants were [t tʰ ʰt tˠ ɾ ddˠ ʔ h] and a zero form (deletion), even though four variants dominated: voiceless plosives (with or without aspiration or preaspiration), voiceless fricatives, voiced stops, and taps. In their study Hay and Foulkes (2016) found that the words favoured by younger speakers are produced with newer variants, frequent words lead the change, and the topic of conversation affects which variant is favored: older topics elicit older variants. Hay and Foulkes (2016) concluded that these findings offer evidence that phonetic distributions of word-level representations are involved in the course of sound change.

2.7.2.3 T voicing in non-native speakers of English

Numerous studies have investigated variationist concepts in the context of second language acquisition (SLA) research, including how /t/s diverge from their CANONICAL forms among non-native speakers of English (Alshboul, 2018; Drummond, 2011; Za'rour, 2018).

Drummond (2011) investigated the linguistic and social factors behind the acquisition of GLOTTAL variation in English /t/ by native Polish speakers living in Manchester, UK. In his study he included 40 Polish who had been in Manchester for varying lengths of time and had varying levels of English language proficiency, to see what encouraged or prevented the acquisition of this widespread variant. He focused on many factors which might be responsible for the variation in acquisition of this variant, such as level of English, length of residence, age,

gender, motivation and attitude. He found a significant gender difference, with women tending to use GLOTTAL variants more frequently than men, in addition to level of English, length of residence and attitude effects. Attitudes were found to be statistically significant in just one environment, so he didn't give much importance to this finding in the analysis, claiming that it would be difficult to come up with reasons why a positive attitude towards Manchester would influence one environment and not another.

In her study of Arab migrants in Wellington, Za'rour (2018) found that young Arab migrants, unexpectedly, diverge from native speaker norms for the stable variable "coronal stop deletion" (CSD), and did not completely acquire the articulatory constraints on CSD that are exhibited by native speakers of English. So they exhibited weak acquisition of native speaker articulatory constraints on CSD.

Alshboul (2018) examined NZE /t/ in the speech of nine male Jordanians in Christchurch. The participants' ages varied between 14 – 60 years, and they were stratified equally into three age groups: "Fathers" aged between 30-45 years, "Older children" born in Jordan who immigrated to NZ between the age of 13-15 years, and "Younger children" who were either born in NZ or born in Jordan but came to NZ before the age of 13 years. He looked at the following environments for variable /t/: intervocalic /t/ across a word boundary [V_#V], such as *lot of*; post-vocalic /t/ before a word starting with a consonant [V_#C], such as *at home*; and finally post-consonantal /t/ before a word starting with a vowel [C_#V], such as *honest and*. A mixed-effects regression model was used in analysing the realisations of /t/s. Alshboul (2018) found 4 variants for variable /t/ across Jordanian speakers in NZ: CANONICAL, TAP, DROPPED and GLOTTAL STOP. He found the production of the variant CANONICAL in the three environments to be the least among the "Younger children" and the most in the "Father" group. The GLOTTAL STOP and TAP variants were most commonly used by the "Younger children", while they were less present in the production of the "Older children" and least frequent among the "Fathers". The t-DROPPING variant was widespread among the "Fathers" group, older children didn't produce t-DROPPING at all, while the younger children produced a few tokens, but not significantly more than the older children.

To sum up, the existing literature on /t/ in New Zealand English has shown that variation tends to happen according to age, gender and class. My own study tracks a change in pronunciation of word-medial intervocalic /t/ in New Zealand English, as it includes 20 Jordanian speakers, some of whom have resided in Christchurch, NZ, for about 25 years. The analysis looks at the effects of generation, gender, occupation, length of residency and attitude on the realisation of

intervocalic /t/. I predict that three variants of intervocalic /t/ will be used by the Christchurch Jordanian speakers: CANONICAL, FLAP and GLOTTAL STOPS. It is important to examine what social factors influence the nature of intervocalic /t/ variation among Jordanian speakers, and to what extent are the patterns of intervocalic /t/ variation being acquired by Jordanian speakers are similar to those patterns exhibited by New Zealand speakers. I will also investigate if the intervocalic /t/ variants can be predicted from the speakers' attitudes.

2.7.3 Vowels

The importance of the acoustic analysis of vowels has been recognized since it formed the core of the highly effective sociolinguistic work of (Labov, 1972). Vowel productions are "represented by plotting on *x–y* scattergrams the frequencies of the first and second formants of vowels measured from their midpoints, or points of greatest formant displacement. This is an application of a technique already long established in the mainstream phonetics literature… and has since been employed in (socio) phonetic work on many languages and dialects… of particular interest has been the potential of F1/F2 data to be diagnostic of sound change" (Foulkes, Scobbie, & Watt, 2010, p. 717).

My study looks at the structured patterns of variation in the speech of Christchurch Jordanian migrants with respect to three vowels: KIT, DRESS and TRAP. It has commonly been mentioned that the realisation of these vowels in NZE is different from that in most other standard varieties of English, in that the TRAP and DRESS are both raised and fronted, whereas the KIT vowel has a more centralised realisation (Bauer, 1986; Wells, 1982). The NZE variety is distinguished by this short front vowel shift – TRAP, DRESS and KIT are moved from one place to another clockwise. This movement can result in confusion for non-New Zealanders, who might hear NZE *sat* as 'set', *ten* as 'tin'/'teen' and *bit* as 'but'. NZE has raised DRESS and TRAP vowels and Centralized the KIT vowel. In contrast, Australian English has raised all short front vowels. In the next three subsections, I discuss the existing literature on the three vowels in NZE in more detail.

2.7.3.1 KIT

The KIT vowel is described as a central variant and more open in New Zealand English in comparison with other varieties of English. Indeed, this is the main feature which differentiates NZE from Australian English (Bell, 1997). While Australian tends to use a high and front variant, New Zealanders on the other hand tend to use a centralised variant. Bell (1997, p. 244) stated that the KIT vowel is "a defining feature of the New Zealand accent, and even of national identity". Bell (1997) also found a pattern of social variation in the KIT vowel based on ethnicity: older fluent Māori speakers used a high front variant rather than a centralised one. Trudgill, Gordon, and Lewis (1998) claim that the centralization of the KIT vowel is a 20th century innovation, and it continues to be in progress.

2.7.3.2 DRESS

Wells (1982) said that that in NZE, the DRESS vowel is close to Cardinal 2. Maclagan (1998) found that among her older speakers in the Canterbury Corpus DRESS sometimes became diphthongised in certain contexts, but with the younger speakers DRESS was continuing to raise. Bell (1997) reported social variation in the DRESS vowel in NZE: he found that Māori men tend to use a lower variant than Māori women who used a low front variant. Trudgill et al. (1998) observed that the raised version of the DRESS vowel occurred in the speech of the 1st and 2nd generation New Zealand born English speakers, and they argued that the continued raising of DRESS vowel is a change in progress. Maclagan and Hay (2004) showed that the DRESS vowel continued to raise, so that it is close to FLEECE and the vowel spaces even overlapped for some speakers, which caused some confusion especially for Americans, going by informal observations from academic visitors to the University of Canterbury. Maclagan and Hay (2007) confirmed that DRESS has continued to raise for some speakers and goes higher than FLEECE, with FLEECE displaying greater diphthongization in response. Hay, Pierrehumbert, Walker, and LaShell (2015) also presented an investigation of the DRESS vowel in NZE and found that the DRESS vowel has raised and fronted, so that words like *bag* and *beg* sound to non-New Zealanders like “beg” and “big”.

2.7.3.3 TRAP

There was a debate in the past whether the NZE front vowel shift is a push chain, which started with the TRAP vowel, or a pull chain that started with the KIT vowel. However, research has now showed that the changes in the NZE short front vowels are the result of a chain shift that started with the raising of the TRAP vowel (Hay et al., 2015; Maclagan & Hay, 2004). Wells (1982) notes that the TRAP vowel is only half-open in NZE, and Bauer (1986) observes that the NZE TRAP vowel lies close to cardinal 3. Trudgill et al. (1998) found that the raised version of the TRAP vowel was present in the speech of the 1st and 2nd generation New Zealand-born NZE speakers and argue that the continued raising of TRAP vowel is a change in progress. In order to show how much the NZE short front vowels differ from RP, E. Gordon (1998) used the vowel trapezium in Figure 2.1. The figure shows that the short front vowels were raised in NZE. As the comparison between RP and NZE illustrates, the short front vowels in NZE show a clockwise chain shift, so that the TRAP vowel is raised close to the DRESS vowel, the DRESS vowel has raised close to the KIT vowel, and KIT vowel has centralised.

To sum up, the NZE variety is distinguished by the short front vowel shift of TRAP, DRESS and KIT. This vowel shift can result in confusion for non-New Zealanders. In my thesis, I investigate the use of the NZE vowel system among Arabic Jordanian speakers in Christchurch, to determine if Jordanian speakers have adopted the NZE short front vowel shift. At the same time, I investigate the effect of social variables such as generation, gender and attitude and explore the effect of word frequency on the speaker's production of the English vowels and whether there is any shift in their English towards NZE system. I predict to find significant effects of social and lexical factors on the use of the NZE short front vowels, particularly generation, attitudes and word frequency. I predict that 2nd and 1.5 generations and those who show positive attitudes towards English will produce more NZE-like vowels than others. I also expect NZE-like vowel realisations to be more common in high frequency words.

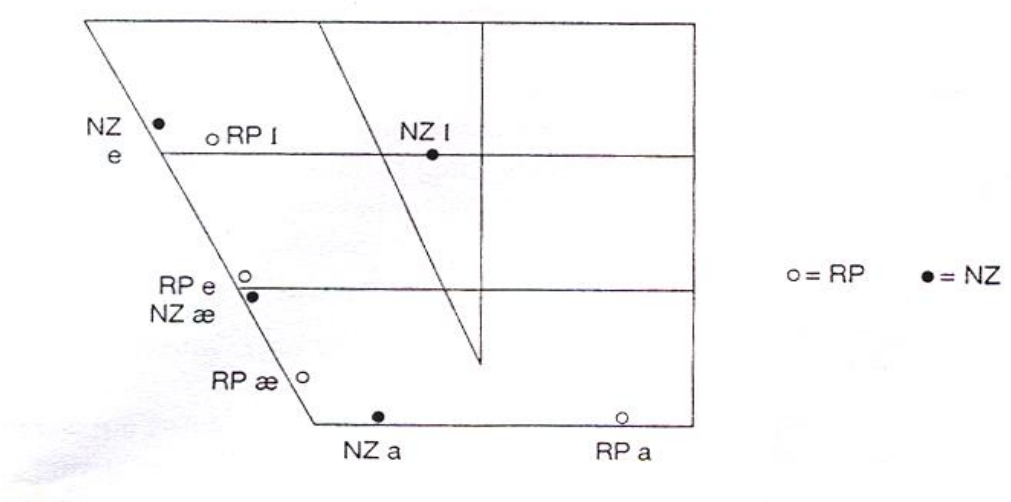

Figure 2.1 NZE short front vowels (Gordon & Deverson, 1998; quoted in Schmied, 2008)

2.8 Variation between Arabic and English consonant and vowel systems

2.8.1 Consonant system

The Arabic consonant system consists of 28 consonants. Like English, Arabic distinguishes stops, fricatives, liquids and nasals. However, the Arabic system also includes two unique classes, the 'pharyngeal' and 'emphatic' phonemes (bracketed phonemes), which do not exist in English language (see table 2.1). Arabic syllables can only start with a single consonant followed by a vowel, however, an English syllable can start with 1, 2, or even 3 consonants (Alotaibi & Meftah, 2013). Many of the Arabic consonants are similar to the English consonants. As I illustrate in the table, there are a few more sounds that are only found in

English (/g/, /p/, /v/ and /ʧ/), but there are other additional sounds in Arabic (Daniels & Bright, 1996).

Table 2.1 shows the IPA consonantal phonemic inventory of Arabic and English. Highlighted phonemes are found only in English, while bracketed phonemes are found only in Arabic. The phonemes /p, g, v, ɹ, ŋ, ʃ, ʤ/ occur only in English and are more likely to be challenging for native speakers of Arabic. It is good to remember the absence of /ŋ/ from the Arabic consonant inventory here, since that is investigated in my study of ING. Equally, the bracketed phonemes that are particular to Arabic can be challenging for native speakers of English when learning Arabic (Kalaldeh, 2016).

Table 2. 1 IPA chart of Arabic and English consonants, bracketed phonemes are found only in Arabic, highlighted phonemes are found only in English taken from (Kalaldeh, 2016, p. 396).

Place→ ↓Manner	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b	f v		t d (tˤ dˤ)				k g	(q)		(ʔ)
Nasal	m			n				ŋ			
Tap/flap				(ɾ)							
Fricative			θ ð (ðˤ)	s z (sˤ)	ʃ ʒ				(χ ʁ)	(ħ ʕ)	h
Lateral				l							
Approximant	w			ɹ			j	w			
Affricates					ʧ ʤ						

2.8.2 Vowel system

The Arabic Language has six vowels, short /a i u/ and long /aː iː uː/. The short vowel /a/ is represented with the *fat'ha,* a small horizontal line above the consonant letter; the short vowel /i/ is represented with the *kasr'a*, a small horizontal line below the letter; and the short vowel /u/ is represented with the *damm'a*, a little hook over the consonant letter. The three long vowels /aː iː uː/ are indicated by employing the consonant letters '*alif*, *ya* and *waw'*, respectively Finally, there are also two diphthongs */ai/* and /*au/* which are also indicated with the letters for the consonants /j/ and /w/ (Jensen, 1969). There are other three reading symbols in the Arabic language which are: the *Sukun*, *Shadda*, and *Hamza*. The *Sukun* is used to show the absence of

a vowel, while the *Shadda* is used to indicate doubling of a consonant and the *Hamza* is used to indicate a glottal stop (Jensen, 1969). In the Arabic language, the duration of the vowel sounds is phonemic and this is one of the main differences between Arabic and English: each long Arabic vowel is phonetically identical to its short counterpart, i.e. the difference is just the duration (Alotaibi & Meftah, 2013). In Arabic a syllable could be open or closed in a limited number of ways. A closed syllable ends with a consonant, whereas an open syllable ends with a vowel, and a vowel always forms a syllable nucleus, so there are as many syllables in a word as there are vowels (Alotaibi & Meftah, 2013, p. 1429). It is unlikely for a syllable in the Arabic language to begin with a vowel. Vowels can just occur between two consonants (interconsonantal) or at the end of a syllable or a word. An Arabic syllable must contain at least 1 vowel. Moreover, Arabic syllables can be categorized as short or long. The acceptable syllables in the Arabic language are: CV, CVC, and CVCC, where V represents a (long or short) vowel and C represents a consonant. The CV type is a short and open syllable, while CVC, and CVCC are long and closed syllables.

The main differences between the English and Arabic vowel systems are in the number of vowels and the tense/lax distinctions (Alotaibi & Meftah, 2013). The vowel system of the English language consists of more than 13 different vowels (with some variation between American and British dialects), including several diphthongs (Alotaibi & Meftah, 2013). Saadah (2011) claimed that English is more complicated than Arabic because it contains 12 monophthongs at least in some varieties of English, as well as diphthongs. In English language, a syllable also could be an open syllable structure or a closed syllable structure, but syllables can be formed in a multitude of ways (Alotaibi & Meftah, 2013; Kalaldeh, 2016; Khalil, 2014). In the English language, vowels can occur word or syllable initially, medially or finally. This means that English can have words that consist of a single vowel, such as “a” (Al-Tamimi, 2007).

Vowel quantity is considered very important in distinguishing between Arabic and different varieties of English (Khalil, 2014). Alotaibi and Meftah (2013) and (Khalil, 2014) argued that tenseness/laxness of vowels between English and Arabic vowel systems varies significantly. Vowels pronounced with more muscle tension are called tense vowels, while those pronounced without much muscle tension are called lax vowels (Alotaibi & Meftah, 2013). Producing vowels in the English language requires more muscle tension by the tongue than in the Arabic language. In other words, the vowel duration is influenced by how tense that vowel is (Alotaibi & Meftah, 2013; Khalil, 2014).

Kalaldeh (2016) reported that pronouncing an English vowel separately from a consonant would cause a production difficulty for speakers of the Arabic language. In order to study the major English pronunciation errors produced by Jordanian students at the University of Jordan, she designed a corpus to investigate the production of English consonants, vowels, consonant clusters, and word stress by Jordanian students. Regarding consonants she found that speakers frequently confused /p - ŋ - ɹ - ɬ/ with /b - ng - ɾ - l/ respectively. Besides, speakers frequently insert an epenthetic /ɛ/or /ɪ/ in consonant clusters, both across words (/bɛst ɪ frɛnd/ for /bɛst fɹɛnd/) and within words (/sɪkɾi:m/ for /skɹi:m/). Regarding vowels (see Figure 2.2), speakers usually confuse the KIT-DRESS vowels pronouncing both as /e/. The LOT vowel is pronounced similar to its RP /ɒ/. The THOUGHT-GOAT vowel difference is absent; both vowels are often merged as [o:]. Lastly, the speakers often shift the stress pattern from its trochaic English stress pattern (e.g. /ɪ'zɪnt/ for /'ɪzɪnt/).

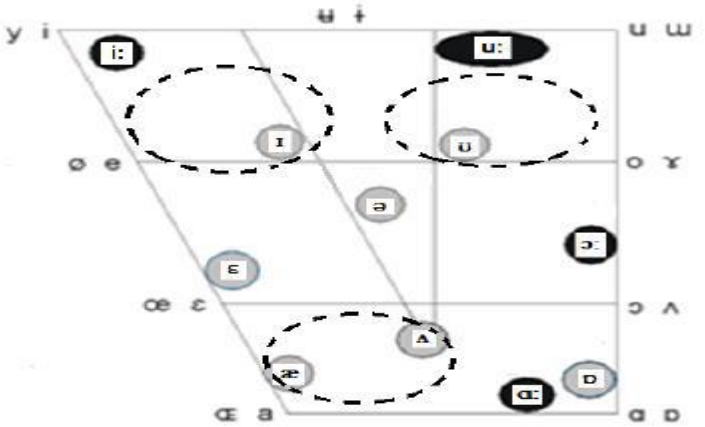

Figure 2. 2 Jordanian English monophthongs as produced in Jordan (Kalaldeh, 2016, p. 397)

2.9 Attitudes

In sociolinguistics, speakers' attitudes have been often studied and there is an agreement that it is "no simple undertaking" (Llamas & Watt, 2014, p. 616). Despite the complexity of the issue, attitudes are considered to be a main determinant of behaviour. Many sociolinguists argue that speakers' attitudes can influence language variation and change. For example, in a LMLS context, speakers who have positive attitudes towards the L2, its speakers and culture are more likely to acquire the L2 proficiently than those speakers who have negative attitudes (Ellis, 1994). As a result of the effect of language attitudes on behaviour, language attitude research can offer a basis for describing major issues in sociolinguistics, such as language variation and change (Labov, 1984).

2.9.1 Language variation and attitudes

One of the most important attitudinal factors influencing L2 acquisition is the attitude of the learner toward the language and its speakers (Spolsky, 1969). Spolsky (1969) has confirmed the idea that attitudes are one of the significant factors determining the degree of proficiency a learner achieves in learning a second language. He states that a speaker's attitude to native speakers of the language will have an unlimited effect on how well he/she acquires the foreign language and "a person learns a language better when he wants to be a member of the group speaking that language"(p. 281). Correspondingly, some people consider acquiring a second language a threat to their identity. From their perspective, their mother tongue is an integral part of their identity. Thus, speaking the second language appropriately, for them, is a kind of tongue twisting and adopting behaviours that are not part of their cultural background (Zarka & El Said, 2013).

How speakers view languages and language varieties has become a major area in sociolinguistics. A good explanation for this is that language attitudes are supposed to be a crucial dimension in the structure of sociolinguistic theory because clarifications of sociolinguistic phenomena are most likely to exist in socio-psychological processes (Garrett, Coupland, & Williams, 1999).

It is widespread in sociolinguistic research to glean qualitative attitudinal information from interviews as additional evidence for interpreting linguistic changes (Clark & Watson, 2016; Llamas, 2007; Xuan Wang, 2017). Work by Llamas (2007) investigated an urban variety of British English in Middlesborough, which is located in a border area in the north of England between the extreme south of the North East and the extreme north of Yorkshire. The transitional nature of Middlesborough has led to complex identity building for local speakers. Llamas (2007) studied the use of the GLOTTALIZED voiceless stops (p t k) by local speakers and collected their attitudes towards their language and area using questionnaires comprising seven general questions. Through a qualitative discussion, Llamas (2007) showed that speakers' linguistic divergence from Yorkshire forms and convergence with North Eastern variants were correlated with their attitudinal information, which illustrated their shifting sense of regional identity.

Work by Clark and Watson (2016) examined the phonological levelling and diffusion of variants of /t/ in Liverpool and two other localities in its hinterland: Skelmersdale and St.

Helens. They showed that the linguistic constraints operating on the realization of /t/ as [h] in words, such as 'what' [wɒh], 'that' [ðæh] and 'market' [mɑːkɪh] in Liverpool have stayed stable over time, whereas not all speakers from Skelmersdale share the same constraints on this variable form, and they linked this with speakers' positive or negative attitudes toward Skelmersdale or Liverpool. They presented extracts from the qualitative interviews as evidence for the speaker's orientations toward or away from particular localities and offered some tentative observations about the relationship between speakers' attitudes and their adoption of the [h] realization of /t/. However, it is difficult to make a strong argument about the effects of attitudes in this context. As Clark and Watson (2016) observed, using selected extracts from interviews might leave the argument somewhat open to the accusation of cherry picking. However, work done by Haddican, Foulkes, Hughes, and Richards (2013) and Xuan Wang (2017) indicates that information gathered from qualitative interviews correlates with quantitative measures, and these measures can systematically predict linguistic behaviour. Xuan Wang (2017) investigated whether the linguistic variation among speakers from the Chinese immigrant city Hohhot is influenced by their social attitudes. She found that speakers' attitudinal index scores obtained from questionnaires were significant predictors for their linguistic behaviour and for the production of two variables: the stress pattern variable and the fricative variable. Moreover, she showed that speakers' attitudes were found to be significant predictors of the speakers' linguistic behavior even when a variable was beneath their conscious awareness. She also showed that information collected from qualitative interviews correlates with quantitative measures, and, significantly, these measures predict linguistic behaviour.

2.9.2 Attitudes/Motivation: "Instrumental and Integrative"

There are two components of language attitudes: instrumental and integrative attitudes (C. Baker, 1992). Instrumental attitude is associated with pragmatic and utilitarian motives and is recognised by a desire to gain social recognition or economic benefit through awareness of a foreign language (Gardner & Lambert, 1972). Instrumental attitude refers to the desire to learn a language to achieve certain goals, such as getting a job, passing an examination, getting a salary bonus or getting into a college. Examples of an instrumental attitude/motivation from C. Baker (1992, p. 32) are:

- Studying French can be important to me because I think it will someday be useful in getting a good job.

- Studying French can be important to me because it will make me a more knowledgeable person.

On the other hand, an integrative attitude towards a language is mostly social and interpersonal in orientation and defined as " a desire to be like representative members of the other language community" (C. Baker, 1992, p. 32). The desire to learn a language in order to communicate with people of another culture who speak it, and the desire to identify closely with the target language group both count as integrative motivation/attitude. Examples of an integrative attitude/motivation cited in C. Baker (1992, p. 32) are:

- Studying French can be important to me because it will allow me to meet and converse with more and varied people.
- Studying French can be important to me because other people will respect me more if I have a knowledge of a foreign language.

According to C. Baker (1992) an integrative attitude to a specific language may relate to the desire to be identified with a language group and its cultural activities, or the desire for friendship within these groups. Ellis (1985, p. 117) explained the use of the terms 'attitude' and 'motivation' and mentioned that "there is no general agreement about what precisely 'motivation' or 'attitude' consist of, nor of the relationship between the two. This is entirely understandable given the abstractness of these concepts, but it makes it difficult to compare theoretical propositions". In this thesis I am using these two terms interchangeably.

Second language acquisition theory confirms the crucial importance of attitudes in second language learning. It is actually a group of factors that strengthen behavior and give it direction. In the area of second language acquisition, people learn a second/foreign language for instrumental reasons, such as for career promotion or passing an examination (Dörnyei, 1990; Gardner, 1985b), or for integrative reasons, because they want to get to know the people who speak that language and want to identify themselves closely with the target language group (Oxford & Shearin, 1994). A learner with an instrumental attitude may consider the language as an instrument/tool to get a reward (Gholami, Allahyar, & Rafik-Galea, 2012). In my thesis I expect to find an instrumental attitude towards English across my speakers in the interviews, particularly with the 1st generation, 1-10 years LoR, and speakers who are not-in-work.

Integrative attitudes are associated with positive attitudes toward the target language group, the possibility for integrating into that group, or at least an interest in meeting and communicating with members of that group. They reflect an interest in learning a second language because of a genuine and personal interest in the culture and community represented by the other language

group (Gardner, 1985b; Gardner & Lambert, 1972). According to (Gardner, 1985b), integrative attitudes play an important role in second language acquisition and are positively associated with second language achievement However, Gardner (1985b) has received lots of criticism on his motivational model.

While some studies agree that an integrative attitude is significant in second language learning (e.g., Gardner & Lambert, 1959), some recent research has suggests that the instrumental attitude has an equal or stronger influence than the integrative attitude on second language learning. Sometimes, integrative attitudes and proficiency were even found to have negative correlations with each other (Belmechri & Hummel, 1998; Dörnyei, 1990).

In fact, it is sometimes difficult to divide instrumental and integrative motivations/attitudes, and not all of these motivations/attitudes are necessarily mutually exclusive. Brown (2000) mentioned that learners hardly select only one type of attitude when learning a second language. The attitude of learning a second language is generally a mixture of different types of orientations. He showed that international students who are residing in the United States learn English for academic purposes and at the same time they have the desire to be involved in the American community and culture. In a later study, Gardner, Masgoret, Tennant, and Mihic (2004) observed that integrative and instrumental orientations had nearly the same influence on university learners of French in Canada. Likewise, Lamb (2004) found integrative and instrumental orientations to be almost indistinguishable among adolescents in Indonesia, in their first year high school. These examples demonstrate that instrumental and integrative motivations/attitudes can mutually exist. This also holds for my speakers and will be discussed in more detail in section 5.3.3.

In my research, I have gathered attitude information from questionnaires and interviews to examine various aspects of participants' attitudes towards Arabic, identity, accent and their spoken English. I assume that this gives a good clue as an independent measure of attitudes for exploring the interaction between attitudes and production (Clark & Watson, 2016; Drummond, 2012; Haddican et al., 2013). I hypothesise that if the participants assess NZ English, culture and identity highly, they will express more positive and integrative attitudes towards them and will use features of the New Zealand accent in their speech. On the other hand, if the participants have a low assessment of New Zealand English, culture and identity, they will express more negative and instrumental attitudes towards them, and they are not expected to use the features of the New Zealand accent in their speech.

Since New Zealand English uses [ɪn] and [ɪŋ] variants of ING, FLAP and GLOTTAL STOP variants of intervocalic /t/, high TRAP and DRESS, and centralised KIT vowels, I expect to find that my participants who show positive attitudes towards New Zealand English, identity and culture will produce the alveolar and the velar variants of ING, the FLAP and GLOTTAL STOP variants of intervocalic /t/, high TRAP, high DRESS, and centralised KIT vowels more often.

2.9.3 Identity and Indexicality

Identity is defined as "[a] person's place in relation to other people, a person's perspective on the rest of the world, a person's understanding of his or her value to others – all of these are integral to the individual's experience of self, and are constructed in collaboration with others as those others engage in the same construction of themselves" (Eckert, 2000, p. 41). In sociolinguistics, identity is assumed to be emergent, not pre-existing. It is supposed to be constructed more than essential, and performed more than possessed, and each of us achieves a repertoire of identities that are frequently shifting, and that we discuss according to the circumstances (Joseph, 2010). It is composed depending on macro-social categories and situational positioning; indexically, relationally, and partially constructed (Bucholtz & Hall, 2005). It is multiple, fluid and dynamic (Anikó Hatoss, 2013; Tawalbeh, 2017). An individual may have multiple or different of identities which might be supportive of or in opposition to other identities present at the same time (Omoniyi & White, 2006). This means that a speaker does not select among a pre-defined set of rigid choices but constructs an identity that is possibly unique to a given situation with its topic and audience, among other things.

Eckert (2008) claimed that the meanings of variables are not fixed but constitute a field of different possible meanings called an indexical field, or group of ideologically connected meanings, any one of which can be activated in the contextual use of the variable. She shows how the interconnected social features connected to the variants of ING can be organised into an indexical field, and she claimed that the social meanings of variants are under-specified (Eckert, 2012). An *index* does not resemble the referent, but it points to it through the association – dark clouds are an index of rain and smoke is an index of fire, for example (Herlofsky, 2003).

Eckert (2008) mentions that stable variables are the most appropriate to include in studies of style, social meaning and indexicality, while variables undergoing linguistic change will have less well-defined social meanings attributed to their variants. The sociolinguistic variable ING

can be claimed to be a good variable for examining indexical meanings in a society, since many studies have found it to be a stable variable, regardless of variety (See: Bell & Holmes, 1992a; Hazen, 2006; Labov, 1966, 1990, 2001b; Reid, 1978; Trudgill, 1974). In my study, I expect to find indexical meanings associated with ING variable, but not with the intervocalic /t/ and the vowels because they are not stable variables in NZE.

Support for the association of stable variables with multiple correlates of social meaning comes from Campbell-Kibler (2005). She carry out a web-based survey as well as a separate study with college students in California and North Carolina. She found listeners' social meanings for ING vary depending on the region, age and perceived social class of the speaker. However, she showed that standard [ɪŋ] indexed "educated" student, regardless of other interacting factors.

Campbell-Kibler (2009) carried out a series of perceptual experiments aimed at identifying social meaning speakers associated with the two variants of ING. She found [ɪŋ] guises to be assessed as educated, articulate, intelligent and hardworking. And these guises were associated with the American West Coast, while [ɪn] guises were judged as bored and polite at the same time. Schleef and Flynn (2015) followed Moore and Podesva (2009) in considering social meanings as personal characteristics, personae, stances and social types indexed by the use of linguistic features in specific communications in their study which examined the social meanings that participants associate with variants of the variable ING in Manchester.

In my study I have mainly focused on the production rather than perception of ING and I therefore haven't elicited the social meanings speakers associate with the variants of ING directly. However, by using the interviews, one can speculate the social meanings the variants of ING index to, and as mentioned before, an *index* does not resemble the referent, but it points to it through the association.

Za'rour (2018) showed that young Arab migrants in Wellington were using what was once an L1 transfer effect, strategically, to convey social meanings that were meaningful to them. She illustrated that although young Arab migrants showed the same significant constraints that existed among NS for the variable CSD, they had different rank orderings, frequencies of occurrence, internal hierarchies and the patterns they displayed for CSD were weak transfer from L1. Although, these results surprised her, she suggested that young Arab migrants seem to be stylistically manipulating NS norms of variation to convey social indices. However, she showed 1.5 generation Arabs acquired the native-speaker constraints on ING and used them in the same way as NS, and confirmed that the articulatory constraints on the variable ING had

less room for L1 transfer and therefore were less likely to host the stylistic use of variation patterns as a reflection of identity marking.

It is likely that (Ning) and (NNing) variants of ING in my study convey social meanings/index NZE and Jordanian English, respectively for members of the Christchurch Jordanian community. Investigating the productive variability and social meaning of ING in Jordanians is valuable, because it permits us to explore what social meanings are attributed to ING variants in varieties where three variants exist. It extends the existing paradigm for studying ING with regard to the social meanings of its variants in an indirect way by interviewing and asking the speakers different language, attitude, culture, and identity questions and tries to infer the social meanings this variable ING and the other variables investigated index.

2.9.4 Lexical Frequency

Frequency effects have been found to influence speech variation and sound change. Frequent words often change more quickly than low-frequency words as a result of phonological processes, but at the same time frequent use of words strengthens word representations and weaken their chances to be changed (Bybee, 2006).

High-frequency words are likely to undergo regular sound change faster than less frequent words and this is correct not only for sound changes in progress, but for stable variation as well (Bybee, 2000). Dinkin (2008) examined the effect of word frequency on the F2 of short vowels in American English. He found that frequent words seem to have more centralized vowels (i.e., lower F2 for front vowels and higher F2 for back vowels), and he interpreted this result as supporting that high-frequency words generally undergo sound change faster. He concluded "even if it may not be word frequency directly that is having a centralizing effect on short vowels, at least it seems clear that some (perhaps subtler) factor related to word frequency is implicated. But, more importantly, it is certainly not sound change in progress in general that is led by more frequent words" (p. 105).

Labov (2003), examined a large amount of data on the fronting of the nuclei of the back upgliding diphthongs /uw/, /ow/, /aw/ in American English and found that the majority of variation could be caused by phonetic constraints rather than word frequency which played no role at all. High-frequency words were no more significant in the sound change in Labov's data than low-frequency words. This motivated Dinkin (2008) to conclude that "it's clearly too

strong to say that frequent words lead phonetic change as a general rule; there's no evidence for that at all in Labov's data" (p. 97).

In my thesis I examine the effect of word frequency on F1 and F2 of the three NZE short front vowels KIT, DRESS and TRAP among Christchurch Jordanian migrants. My expectation is that high frequency words will be more likely to be pronounced in a NZE way than low frequency words (for more discussion see section 5.2.3.1).

2.10 LVC research questions

The LVC part of my research looks at the realisation of the two consonants ING and intervocalic /t/ and the three short front vowels KIT, DRESS and TRAP in the NZE among Arabic Jordanian speakers and tries to determine if Jordanian speakers have adopted the changes happening in these two consonants and the three short front vowels in NZE. I am also investigating the effect of social variables such as generation, gender, word frequency and attitude on the speaker's production of English vowels and examining if there is any shift in their English towards NZE system. The research utilises quantitative and qualitative research methods in this production part, and the data were gathered to address the following research questions for the consonants and vowels:

2.10.1 Consonant research questions

1- What social factors influence the nature of ING and intervocalic /t/ variation?

2- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behaviour and their production of the two consonants ING and intervocalic /t/ in NZE?

2.10.2 Vowel research questions:

3- Will speakers' vowel variation be conditioned by social factors and lexical frequency?

4- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behavior and their production of the KIT, DRESS and TRAP vowels in NZE?

Chapter 3: The methodology

3.1 Introduction

Sociolinguistic research questions can be investigated through quantitative or qualitative research methods (Brookhart & Durkin, 2003). Studies in the field of sociolinguistics, particularly in LMLS and LVC have employed either quantitative content analysis, such as Aipolo and Holmes (1990), Alshboul (2018) and (Dweik, 1980) or qualitative analysis, such as Al-Saidat (2010) and Lee (2013) or both, such as (Gnevsheva, 2015; Tawalbeh, 2017; Xuan Wang, 2017).

Questionnaires can give evidence of patterns amongst large populations. Questionnaires allow respondents to have a generous amount of time to consider their responses to the questions asked, allow anonymity, which rises the probability of the respondents' providing responses that honestly represent their attitudes, can be posted/mailed and administered directly Henerson et al. (1987). According to Tawalbeh (2017, p. 3) "Most New Zealand research has used quantitative analyses that generate trends in language use patterns among immigrant communities". For all these reasons above, questionnaires were used and implemented in gathering LMLS data and were analysed quantitatively.

Due to the interactive nature of the interview, interview data often provide more detailed insights into participant attitudes, thoughts, and actions (Berg, Lune, & Lune, 2004; Kendall, 2008). Meeting with respondents directly 'face-to-face' will lead to much more information which will be definitely derived from their speech. In my research, I used interview because it is the most successful and efficient tool to elicit natural speech data (Labov, 1984; Meyerhoff, Schleef, & MacKenzie, 2015). Clark and Watson (2016) showed the importance of using attitudinal information gleaned from interviews to explain speakers' linguistic behaviour, hypothesising a probable correlation between attitudes and language change. Further research showed that information collected from qualitative interviews correlates with quantitative measures, and, significantly, these measures systematically predict linguistic behaviour (Haddican et al., 2013).

The work presented in the second part of the thesis is a variationist sociolinguistic study. The data of the LVC part was gathered through 'semi-structured' interviews which were analysed quantitatively and qualitatively (e.g., attitudes). Extracts from the interviews were used as evidence for participants' attitudes toward or away from particular language, identity, accent and culture. I also examined if information gleaned from qualitative interviews correlated with

the quantitative measures obtained for each speaker from the attitude part in the questionnaire, and, tested whether the quantitative measures predict linguistic behaviour. The next sections present the quantitative and qualitative data collected from questionnaires and interviews which are discussed after that.

3.2 Questionnaire

Questionnaires allow scholars to collect relatively a large amount of data quickly (Holmes & Hazen, 2013), and are considered as one of the most common instruments in data collection (Dornyei, 2007). My questionnaire is designed to collect data on the degree of *proficiency* in both Arabic and English, language use patterns in different *domains*, and *attitudes*. Questionnaire items were presented in a clear, unambiguous way and tried to minimise any potential misinterpretation that the respondents could have. The answers were returned to the researcher by the participants themselves and friends, or collected back by my wife and myself. The answers were then transferred into an excel sheet, coded and reviewed to determine the views of the respondents. After that, the data were uploaded to R and analysed quantitatively. The next subsections present the designing, piloting, translating, Ethics, distributing and collecting of the questionnaire, description of the sample and the principle component analysis are discussed after that.

3.2.1 Designing the questionnaire

The questionnaire was designed for quantitative analysis and involves four main parts with a total of 47 items (see Appendix I). All of the items ask participants to select a response to a question or statement from a list of answers. I did include one open-ended question but, then I decided to exclude it from the analysis as it can be problematic to code and analyse (Dornyei 2007) and my participants often avoided it or offered unrelated data (Rasinger, 2013).

Most of the questions in the questionnaire are standard questions in the field of LMLS and are very much influenced by the following studies Tawalbeh (2017), Al-Khatib and Al-Ali (2005), Bichani (2015), Dweik (1980), Yu (2005) and (Hudyma, 2012).These studies used questionnaires with Arab populations in Jordan, the United States, Canada, the United Kingdom and New Zealand. A number of additional items were developed by the researcher to suit the second part of the study on language variation (e.g., accent, culture and identity questions) and

to suit the specific characteristics and linguistic specifications of the Jordanian community in Christchurch.

All responses in the questionnaire were measured on a five-point Likert scale. A Likert item is "a forced choice ordinal question which captures the intensity of opinion or degree of assessment in survey respondents. Historically a Likert scale contains five options: strongly approve, approve, undecided, disapprove, strongly disapprove and other alternative options, such as "agree" or "neutral" or "neither agree nor disagree" may be used depending on the context"(Derrick & White, 2017, p. 2). Likert scales have been used over decades in the field of Linguistics and documented by many scholars such as Abdalla (2006), Tawalbeh (2017), Al-Khatib and Al-Ali (2005), Dweik (1980), Tawalbeh et al. (2013) and Turjoman (2017). The questionnaire has the following four sections:

3.2.1.1 Demographic and background information

This section was designed to elicit information on the demographic background of the respondents. It consists of seven questions requesting information about the gender of the participants (e.g. male, female), their age groups (e.g. 18-33, 34-49 and 50+), the place of birth, the age on arrival in New Zealand/generation (0-5 years, 6-15 years, 16+ years), the LoR in NZ (e.g., 1-10 years, 11-20 years and 21-30 years), their native language/s, and their religion. These questions are included because they are very common in LMLS and language variation studies, and allow us to determine which social variable/s has an influence on both LMLS and variation.

3.2.1.2 Language proficiency

Self-reported language proficiency in Arabic and English was measured on a five-point Likert scale numbered from 1 to 5 (1 = poor and 5 = excellent). The participants were asked to rate their reading, writing, speaking and understanding proficiency skills in Arabic and English languages. The proficiency section consists of 8 questions and the five response options were: poor, fair, good, very good, and excellent. Being not proficient in the mother tongue may result in limited use of that language in different domains (Jaspaert & Kroon, 1991). A lack of proficiency in the mother tongue may also lead to the use of the dominant language in different contexts. Language proficiency as well as preservation of language use indicate language maintenance (see e.g. Al-Khatib, 2001; Al-Majali, 1988; Al-Sahafi, 2010; Bichani, 2015; Guardado, 2002; Habtoor, 2012; Kloss, 1966; Plimmer, 1994).

3.2.1.3 Language use patterns in different domains

The language use/ language choice items are designed to discover the patterns of language use in different domains and in different contexts. Many researchers, such as Al-Khatib (2001), Al-Sahafi (2010), Dweik (1980), Fishman (1966), Holmes et al. (1993), Lee (2013) and Tawalbeh (2017) have highlighted the importance of investigating the habitual use of both the minority language and the dominant one in different domains to investigate whether or not a language regression is happening among the people of the minority group. According to Fishman (1964), minority people can maintain both the dominant and the minority languages if there is a separation of domains between the languages, e.g. speaking the heritage language at home and the dominant one outside (see e.g.Clyne, 1985; Fishman, 1965; Weinreich, 1979).

This section aims to examine what language the participants use when communicating with different people in different contexts (Arabic or English). It is divided into three domains including: home, friendship and the mosque. Each domain consists of four items. At home, the focus is on the language that the participants use with their parents, spouse/partners, siblings and children if applicable. As for the friendship domain, the focus is on the language used between the participants and their Arabic friends, the language used in the presence of non-Arabs in their conversations, the language used by Arabs when communicating with the participants, and the language used in texting or emailing Arab friends in Christchurch. The domain of religion investigated both productive and receptive skills of language use. Productive skills emphasis was the language(s) that used in prayer and the language(s) that the participants used when conversing with each other in the mosque. While the receptive skills emphasised the languages that the Imam used in the mosque and the languages used in giving the Fridays' ceremony. A five-point Likert scale was used for the questions related to the Language Use, ranging from one to five (1 = only Arabic and 5 = only English) and ordered as follows: only Arabic, mostly Arabic, Arabic and English, mostly English, only English.

3.2.3.4 Language Attitudes

The fourth section consists of twenty questions which aim to elicit the participants' attitudes toward the Arabic and English languages (Baayen, Piepenbrock, & Gulikers, 1995). This section comprises thirteen Arabic-focused questions and seven English-focused questions. The

questions focus on the respondents' attitudes towards Arabic and English in terms of importance of both languages for getting jobs, preference and necessity for learning. The questions also probe the necessity of speaking Arabic to have an Arabic and Islamic identities, and questions also probe the necessity of speaking English to have a NZ identity Furthermore, the questions were designed to investigate the views of the respondents towards maintaining the Arabic culture and close family ties with Arabic relatives and the importance of understanding the New Zealand culture. Moreover, two questions were targeted at discovering their feelings about Arabic and New Zealand accents; whether they like to have the Arabic accent in their English or the English accent in their Arabic. Finally, two questions asked whether the participants would automatically speak Arabic/English in the company of Arabic/English speakers. The answers for this part are divided into five categories (strongly agree, agree, not sure, disagree, strongly disagree) and use a five-point Likert - scale ordered from 1 (strongly agree) to 5 (strongly disagree).

To analyse the questionnaire responses to the attitude questions, I used 'principal component analysis' (PCA) (discussed in depth in section (3.2.7), which is widely applied in the analysis of psychological measurements using questionnaires, particularly in attitude (see for more information e.g., Akay & Toraman, 2015; Borenić, 2010; Hashimoto, 2019; McKenzie, 2007; Schilling, 2013; Xuan Wang, 2017). In this study, I have collected speakers' attitudes using self-report questionnaires. The assumption behind self-report scales of attitude is that people are ready and are able to report their attitudes accurately; yet, these conditions are often difficult to meet because self-reports of attitudes largely depend on the context (Schwarz, 2008). This means people may not have introspective access to their attitudes, but need to have an immediate judgment, which may be determined by what evidence comes to mind at that point, or people may attempt to hide their attitudes by giving socially more acceptable answers for the sake of social desirability and for self-presentation (Bohner & Wänke, 2002; Schwarz, 2008). Previous quantitative studies hardly found any correlation between overt attitudes and linguistic behaviour. Gallois, Cretchley, and Watson (2012) found that attitude measurements were good indicators of speakers' expressed attitudes, but not always good predictors of behaviour.

The attitude questions in the Questionnaire used in the present study contained only direct questions about speakers' attitudes towards Arabic and English. Many researchers rely on participants' responses to direct attitude questions. Direct questions are the most practicable process for measuring the attitudes of the population at large, as is done in representative sample

surveys. The use of direct questions is based on the assumption that people have introspective access to their attitudes (Schwarz, 2008) and are conscious of what they like and dislike and are prepared to communicate their views, whereas many other attitude measures do not need this supposition.

3.2.2 Piloting the questionnaire

Questionnaires allow researchers to collect relatively a large amount of data quickly. Once a draft version of the questionnaire has been completed, it should be tested before it is used on the target participant. This is to make sure that the questionnaires' questions will be clear for the respondents, identify possible faults and misunderstandings and to refine some of the questions in specific areas. Piloting can help to identify questions that don't make sense to respondents, or problems with the questionnaire that might lead to unreliable responses.

Moreover, a questionnaire which has been validated in the past can be used without additional experimenting, but any new ones should be piloted, in order to be developed on the basis of the answers collected, until no further problems might be found. Sometimes, participants make notes and recommendations that stimulate new ideas, new points to discover, and a different way of looking at things which the researcher didn't think of initially and which can be added to the questionnaire.

For these reasons, I talked to five people from the community at the outset and developed a questionnaire and then asked them to fill it out. I was present while they were filling the pilot questionnaire in order to explain anything which seemed vague and offer help when necessary. Also, while observing the participants completing the questionnaire, I looked at where they paused or made comments. All of their suggestions were considered and taken as indications that some questions were not clear enough and needed to be improved. So, even with such a small number of participants, I received many suggestions such as ('I don't understand this question', 'it is too long', 'I feel bored, 'I feel uncomfortable to be asked this question', 'this word is ambiguous or general', 'this question is repeated', 'this question should be like this', 'this word should be substituted', 'this question should be added', etc.…).

An example of a question they suggested was "*How long have you been here in New Zealand*?" This question was very important because it helped me to find out if there was any relationship between the 'length of residency'/ time spent in the country and its influence on the participant's proficiency and attitudes toward Arabic and English languages. Another statement that was

modified is *"I feel happy when people say that I have an Arabic accent"*, which became "*I feel happy when people say that I have an Arabic accent when speaking English*". In fact, such a modification made the statement clearer. Moreover, an example of a deleted statement is "*I feel shy to speak English in front of Arabs*". This question was left out of the final version of the questionnaire as many participants paused and refused to answer it in the piloted version of the questionnaire. The reason for such a reaction is uncertain; it could be because participants were not comfortable talking about the idea of shyness when speaking the language, or they might think speaking the language or not has nothing to do with shyness.

3.2.3 Translating the questionnaire

I translated the English version of the questionnaire myself into Arabic and then had it checked by an Arabic Jordanian, who is a PhD holder, bilingual speaker, born in an Arab country, well educated in the Arabic Language, lived half of his life in Arabic speaking countries (about 30 years), before moving to NZ permanently. To make sure that the Arabic translation was clear and correct in its structure and style, I sent it to an Arabic teacher in Jordan, and then I sent it back to the same PhD holder in NZ to check that the Arabic version matched the English one. The Arabic version (see Appendix II) was piloted with two Jordanians in Christchurch and no changes were made.

3.2.4 Ethics

The final versions of the questionnaire and the interview questions were sent to the University of Canterbury Human Ethics Committee. Ethics approval for the questionnaires and interviews were maintained by giving all the participants written consent forms that clarified their role and rights as participants. We clarified that their participation would be through answering a questionnaire and later interviews will be conducted and recorded.

However, participation in the questionnaire was taken as a consent for their data to be used for my academic research purposes. Their responses were treated confidentially, and any resulting reports will not contain any information that could be used to identify an individual. Data will be only accessible to the researcher and the supervisor only. It will be kept for 10 years to allow for longitudinal analysis.

To reduce the risk of obliging "personal acquaintances" to take part in the questionnaire, participation was voluntary and the participants had the right to withdraw at any time. Moreover, I had put some ads in different places usually visited by Arabs (e.g., the mosque, an Islamic kindergarten and UC Mussala) and any interested person to participate in the study was asked to contact me by email or mobile. But, unfortunately, the advertisement's method was not affective for recruiting participants because there was no response at all.

Because of this an alternative method was used for finding the questionnaires' participants. Namely I used the snowball or social network models (J. Milroy & Milroy, 1978). Reaching participants through a trustworthy person provides the researcher credibility (Mesthrie, 2013) and relieves any uncertainty about the research (Smythe, 2012). This approach also allows the researcher to contact 'hard to reach' participants (see Hennink & Simkhada, 2004).

Oppenheim (1992, p. 43) describes this method as:

> A research technique where a few appropriate individuals are located and then asked for the names and addresses of others who might also fit the sampling requirements. And the process is repeated until it yields a substantial number of participants.

Through university/friendship networks I had met while studying at UC and through family interactions with other Jordanian families, I had made many Jordanian friends. I began calling my friends and people I knew, and they all agreed to assist me with in finding participants for my study. Through my wife and close family friends, I was able to reach many more participants, thereby including in my research more people who were not personal friends or acquaintances and thus reducing the chances of obliging participants to take part in my study. By following this technique I was able to reach all Jordanians who were in Christchurch at the time of the study and were willing to participate. And this is confirmed by the number of participants who participated in the study, and by discussing and asking my distributers whether any Jordanian in Christchurch didn't receive the questionnaire.

3.2.5 Distributing and collecting the questionnaires

I distributed the questionnaires at different times between September and December 2016, in places like Riccarton, Upper Riccarton, Fendalton, Addington, and Avonhead in Christchurch. The participants were initially contacted through my personal network and through my wife's

personal network since she has been working in an Islamic Kindergarten in Christchurch. Once a number of participants had been found, the 'social network' or a 'snowball' model was used to locate further willing participants and approach the subjects in the way of a friend of a friend or, in some cases, through a friend of friend's friend (J. Milroy & Milroy, 1978).

The researcher and the helpers gave the information sheets and the consent forms to potential participants before their start of answering the questionnaires. After the participants read through the information sheet, they were given the opportunity to sign or withdraw, if they wished. Participants were told that the questionnaire will take about half an hour to complete, and it will be confidential although basic demographic information was collected. After the questionnaires had been returned to me, the participants' real names were not included on the questionnaire except those who gave their consent to be contacted for participating in the interviews. Some participants once they handed the questionnaires back, they were giving us their consent to participate in the interviews or some of them had already written their names and emails on the questionnaires. The questionnaires were coded with numbers and letters indicating gender (Female/Male), i.e. F1, F2, M1, and M2.

3.2.6 Description of the sample

A total of 99 participants completed the questionnaire, with slightly more males (57) than females (42). Participants came from one ethnic group, "Jordanian and Palestinian Arabs". All participants were Muslims. The participants were divided into three age groups (young 18-33, middle 34-49 and old 50+). The largest number of participants belonged to the young age group (60 participants), then the old (21 participants) and the middle (18 participants). Participants ranged in their LoR in New Zealand from 1 to 25 years and were put into three groups: Group A (1-10 years) consisting of 39 participants; group B (11-20 years) comprising 50 participants; and group C (21-30 years) containing 10 participants. The mean length of time in New Zealand was 12.53 years.

The majority of participants were born in Jordan (42), Palestine (23), New Zealand (9) and the remaining (25) were born in these countries: Egypt, Kuwait, Saudi Arabia, United Arab Emirates, Iraq and Syria. Most were 1st-generation New Zealanders (64), with 20 being considered '1.5' generation, and 15 participants considered 2nd generation. My definition of 1.5 and second generation is based on Danico (2004). 1.5 generation includes foreign–born children who were born in the above mentioned countries and immigrated to New Zealand (host country)

after the age of 6 with their first-generation parents, so it includes immigrants who arrived in NZ as children (Rumbaut & Ima, 1988). Second generation includes individuals who were born in New Zealand to at least one first generation parent, or individuals who immigrated to New Zealand prior to the age of six (Van Ours & Veenman, 2003).

Because the adult Arabic Jordanian community in Christchurch is quite small, I attempted to collect questionnaire responses from the whole community. I realised this would not be entirely possible, as some people were unavailable, did not wish to take part, or travelled abroad at the time of collecting the data, but I tried my best to contact and include all Jordanians who agreed to participate in my study and ended up with 100 participants.

3.2.7 Quantitative analysis of Questionnaire responses

R was used to analyse all the quantitative data collected with the questionnaires (R Core Team, 2018). R is an open source language and environment for statistical computing freely available at http://cran.r-project.org. The questionnaire responses were first manually entered into a spreadsheet and checked thoroughly. Because I had only one Christian participant, his answers were excluded from the analysis and ended up with 99 participants. Within R, different statistical tests were used to compare groups (e.g. generation, gender, LoR and attitudes), with the significance level set at 0.05 ($p < 0.05$). Descriptive statistics that consider mean and median scores were used in the analysis of the questionnaire. The following statistical methods were used to analyse the questionnaire:

- Wilcoxon test: a non-parametric statistical hypothesis test used to compare one set of measurements with a second set from the same sample (e.g. comparing the mean scores for Jordanians' Arabic oral ability in 1.5 and 2nd generations). It is good for my data with outliers, not normally distributed and works well for ordinal data. The strength of a nonparametric test exists in that it can be applied without any assumption about the form of the underlying distribution. In a Wilcoxon test the data are not normally distributed. So when the normality is questionable, the paired sample Wilcoxon test is one of the best tests to use to substitute the paired sample t-test (Imam, Usman, & Chiawa, 2014).
- A Boxplot is a way of displaying statistical data on a plot in which a rectangle is drawn to symbolise the second and third quartiles, with a vertical line inside to show the median value. The upper and lower quartiles are presented as horizontal lines on either side of the rectangle. Boxplots are often used in descriptive data analysis (McGill, Tukey, & Larsen, 1978).

3.2.7.1 Principal component analysis

To further analyse the attitude questions in the questionnaire, I used 'principal component analysis' PCA, which is widely applied in the analysis of psychological measurements using questionnaires, particularly for attitude (see for more information e.g., Akay & Toraman, 2015; Borenić, 2010; Hashimoto, 2019; McKenzie, 2007; Schilling, 2013; Xuan Wang, 2017).

PCA is used to explore the structure of the questionnaire and to cluster the questions into different themes. PCA is a technique for reducing the dimensionality of such datasets (Dunteman, 1989). The goals of PCA are to (a) extract the most important information from the data table, (b) compress the size of the data set by keeping only this important information, (c) simplify the description of the data set, and (d) analyse the structure of the observations and the variables (Abdi & Williams, 2010, p. 4). The purposes of using PCA in the current study are:

1) Since the original attitude questionnaire of this study consists of 24 items, PCA reduces the size of the data set to a more manageable size (20 items), making them simpler to describe in further analysis.

2) The PCA method also helped me to discover the infrastructure of my questionnaire responses, so that I could understand any set of questions that may be grouped together and perhaps index the same fundamental aspects of attitudes.

3) PCA was applied to language proficiency and language use parts of the questionnaire, but didn't work in the proper way. PCA was not able to group the questions to understandable components and this might be due to the small number of questions in each section (8 & 12), respectively.

Before I started using PCA, preliminary analysis was conducted to check whether PCA is appropriate for factor analysis or not. I used R Core Team (2018) in analysing the original data set to determine that the correlation matrix formed by respondents' responses was examined on 24 questions to ensure that all variables were fairly well linked. A correlation matrix is good to use to display correlation coefficients among sets of variables, a way to summarize large amount of data to get more advanced analysis, a way to see which pairs had the highest correlation. The greater the number, the stronger the correlation between the variables.

The *cortest.bartlett*() function was used from the *psych* package Revelle (2015) to run Bartlett's test of sphericity to check whether the correlations between all the variables were large enough

for PCA. The result of Bartlett's test of the current matrix is of great importance. The p value was < 0.001, so the correlation matrix was not an identity matrix, thus factor analysis was appropriate. Moreover, the Kaiser-Meyer-Olkin's Test (KMO) for the 24 attitude questions was calculated at 0.81 (see table 3.1). The data are suited for factor analysis and the sample size is adequate, and the results between (0.80 to 0.89) are considered as meritorious (Kaiser & Rice, 1974). However, two questions (8 & 18) showed low values on the results (0.49 & 0.36) respectively, which means unacceptable values (Kaiser & Rice, 1974).

Overall MSA = 0.81

MSA for each item =

q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	q11	q12	q13	q14	q15
0.78	0.81	0.84	0.88	0.81	0.78	0.88	0.49	0.80	0.87	0.62	0.91	0.87	0.82	0.66

q16	q17	q18	q19	q20	q21	q22	q23	q24
0.83	0.84	0.36	0.76	0.80	0.89	0.86	0.85	0.81

Table 3. 1 KMO results for 24 items

After that, parallel analysis was conducted and suggested number of components to be three. This can be seen by looking on the Scree plot shown in (Figure 3.1) below, which plots the loadings (y) against the component number (x) (Andy Field & Miles, 2012; Baayen, 2008; Revelle, 2016). Another statistical criteria was also used, such as Very Simple Structure Criterion (VSS) and showed *VSS complexity 2* value (0.91) for three factors is greater than the value of *VSS complexity 1* (0.87) for one factor. So, I could accept the complexity 2 solution.

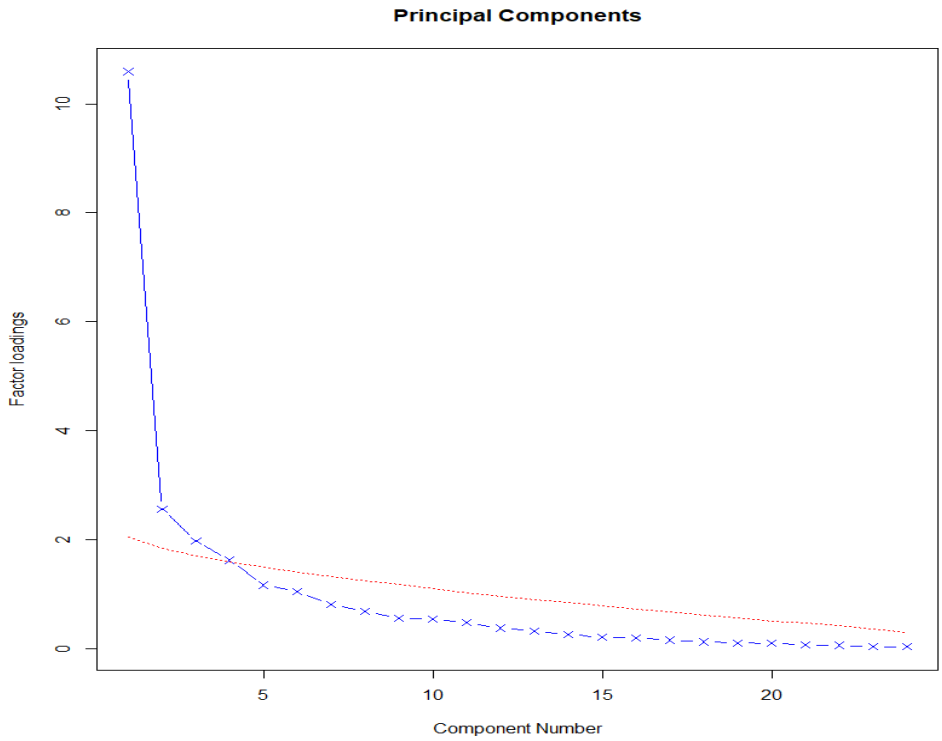

Figure 3. 1 Scree plot from PCA for 24 items

At the stage of KMO test, two questions (q 8 & q 18) were not very good in terms of data size. Moreover, (q 18) was a repetition for (q 14) in the questionnaire so I decided to exclude (q 18) from further analysis. For these reasons I tried PCA again with 22 questions.

The results for the 22 questionnaire questions showed that the load of (q 9) in PC1 was low (-0.31) and PC1 was the right factor for this question to be in, in addition to that (q 9) was related/connected with (q 8). Both questions were investigating language death at home and the community. So I decided to exclude (q 9) from further analysis.

Moreover, the load of (q 20) found low (-0.69) in PC1, in addition to that this question had two faces; it could be located in PC1 and in PC2. So, I decided to exclude it from further analysis and the questionnaire ended up with 20 questions.

For the 20 questions the results of Bartlett's test of the current matrix was of great importance, the p value was < 0.001, thus factor analysis was appropriate. Moreover, the Kaiser-Meyer-Olkin's Test (KMO) for the 20 attitude questions was calculated at 0.83 as appear in (table 3.2), the data were suited for factor analysis and the sample size was adequate (Kaiser & Rice, 1974).

Overall MSA = 0.83

MSA for each item =

q1	q2	q3	q4	q5	q6	q7	q10	q11	q12	q13	q14	q15	q16	q17
0.76	0.79	0.83	0.90	0.82	0.75	0.95	0.81	0.68	0.91	0.87	0.84	0.64	0.85	0.88

q19	q21	q22	q23	q24
0.80	0.92	0.86	0.87	0.78

Table 3. 2 KMO results for 20 items

Parallel analysis test suggested number of components to be two. Two main factors were revealed from running PCA. This can be seen by looking on the Scree plot shown in (Figure 3.2), which plots the loadings (y) against the component number (x) (Andy Field & Miles, 2012; Baayen, 2008; Revelle, 2016). Very Simple Structure Criterion (VSS) also showed *VSS complexity 2* value (0.94) for two factors is greater than the value of *VSS complexity 1* (0.88) for one factor. So, I accepted the complexity 2 solution. Finally, to make decisions on how many factors to keep, the results for all of these criteria support the decision to focus on two factors.

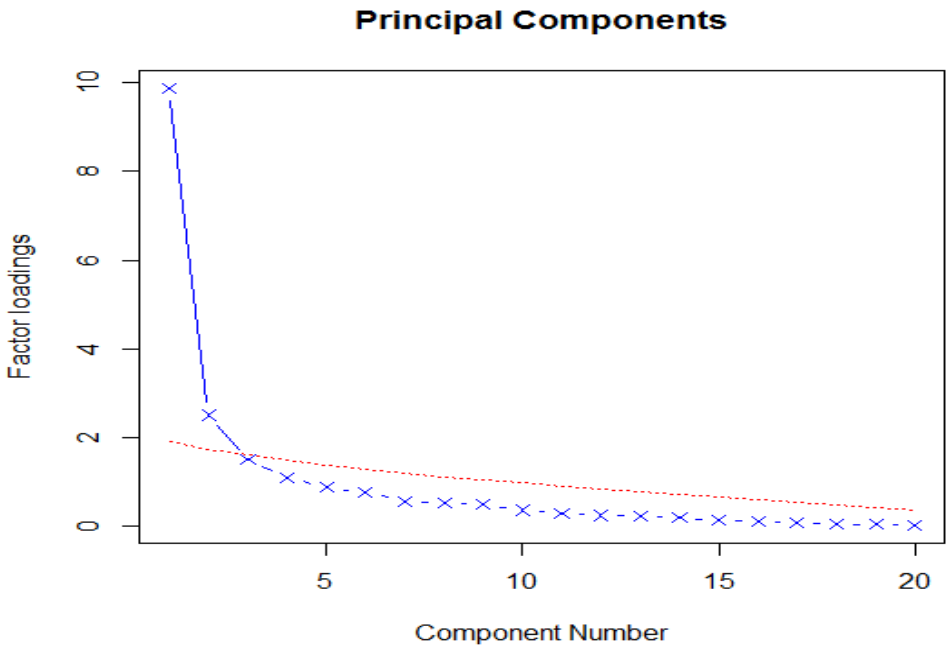

Figure 3. 2 Scree plot from PCA for 20 items

Table 3. 3 Two components revealed by PCA of the Attitude Questions (20 items) and the questions that have higher loadings for each component

Item	**PC1**	**PC2**
q11	0.93	0.39
q10	0.87	
q5	0.84	
q13	0.72	
q7	0.69	
q2	0.7	
q4	0.62	
q1	0.64	
q6	0.59	
q3	0.55	
q21	0.52	
q15		0.85
q14		0.82
q24		0.84
q17		0.74
q23	0.38	
q16		0.6
q22		0.57
q12	0.33	
q19		0.45

Table 3.3 shows the items' number and the two components PC1 and PC2 revealed by PCA of the Attitude Questions (20 items). It shows the results of two components identified by PCA, where the numbers point to how much each question adds to each component. Question number (11) is overlapped, but it loads more in PC1 than PC2. So this question will be in PC1. The questions included in each principle component can be used to clarify what this principle component really means. For example, questions in the first principal component (PC1) all appear to tell us about people's attitudes towards Arabic and culture, so PC1 is labelled as "attitudes towards Arabic", while questions in the second principal component (PC2) all appear to tell us about people's attitudes towards English and New Zealand culture, so PC2 is labelled as "attitudes towards English". Table 3.4 below shows what these items and numbers refer to in the column 'ordinal number of the question in 20 items'.

Table 3. 4 Two principal components' questions revealed by PCA

PCA components	Ordinal number of the question in 24 items	Ordinal number of the question in 20 items	Questions
(PC1) Attitudes towards Arabic Language and culture	Q11 Q10 Q5 Q13 Q7 Q2 Q4 Q1 Q6 Q3 Q21 Q23 Q12	Q9 Q8 Q5 Q11 Q7 Q2 Q4 Q1 Q6 Q3 Q17 Q19 Q10	Q 11. It is important for me to maintain close family ties with my Arabic relatives. Q 10. It is important for me to maintain my Arabic culture. Q 5. Although I live in New Zealand still I feel that I am an Arab. Q 13. If I have children I would like them to learn Arabic. Q 7. It is important to me that I marry an Arabic person. Q 2. Arabic is the language that I have to maintain for the whole of my life. Q4. It is necessary for an Arabic person to speak Arabic language to have an Islamic identity. Q 1. Arabic is a very important language to learn. Q 6. It is necessary for an Arabic person to read and write Arabic. Q 3. It is necessary for an Arabic person to speak Arabic language to have an Arabic identity or to be an Arab. Q 21. I feel happy when people say that I have an Arabic accent when speaking English. Q 23. I am likely to automatically use Arabic when in the company of Arabs. Q 12. In order to be successful in my professional life, I have to improve my Arabic.

(PC2) Attitudes towards English Language and NZ culture	Q15 Q14 Q24 Q17 Q16 Q22 Q19	Q13 Q12 Q20 Q15 Q14 Q18 Q16	Q 15. It is necessary for an Arabic person in Christchurch to speak English language. Q 14. Knowing English is more important for getting a job than knowing Arabic in New Zealand. Q 24. I am likely to automatically use English when in the company of English speakers. Q 17. It is important to me to understand the New Zealand culture (dress, food, traditions, and behaviours). Q 16. I am proud to have/ to get New Zealand citizenship/permanent residence. Q 22. I feel happy when people say that I have a New Zealand accent when speaking Arabic. Q 19. It is necessary for me to speak NZ English to have a New Zealand identity.
Excluded Items	Q8 Q9 Q18 Q20		Q8. Arabic is dying in my home in Christchurch. Q9. Arabic is dying in my community in Christchurch. Q18. In order to be successful in my professional life, I have to improve my English. Q20. I respect Arabs (in New Zealand) who only use English.

Table 3.4 above shows the 24 items of the attitudinal questionnaire. 4 items were excluded by PCA (8, 9, 18 and 20), so they will not be included in the analysis. While, 20 principle component questions were revealed by PCA, which will be used in the analysis. The table also shows that the PCA has two components: PC1 and PC2. PC1 consists of 13 items about Arabic language and culture and PC2 consists of 7 items about English language and NZ culture. The ordinal numbers for the 24 items will be used in the analysis as shown in the next paragraph.

Questions Q11, Q10, Q5, Q13, Q7, Q2, Q4, Q1, Q6, Q3, Q21, Q23 and Q12 are clustered as the first component by PCA, which relate to Arabic language and culture (see table 3.4). So this component is labelled as "Arabic oriented questions". This component consists of 13 questions and is divided into four themes by the researcher to facilitate their analysis and understanding.

Questions (1, 2, 6, 12 and 13) are clustered as theme number one, which relate to the participants' feelings of ethnic language learning, improving and maintaining. Theme number two is about the importance of Arabic cultural maintenance and family cohesion which consists of three questions (7, 10 and 11). Questions (3, 4 and 5) are clustered as the third theme which relates to the participants' feelings of ethnic language and identity. Theme number four consists of two questions (21 and 23), which relate to whether Jordanian people would like to have Arabic accent in their English, and whether they automatically speak Arabic when in the company of Arabs.

Questions Q15, Q14, Q24, Q17, Q16, Q22 and Q19 are clustered as the second component, which relate to English language and NZ culture. So this factor is labelled as "English oriented questions". This component consists of 7 questions and is divided into two themes by the researcher. Theme number one consists of 3 questions (14, 15 and 24), which relate to participants' feelings towards English language learning, speaking and automaticity of using it. Theme number 2 consists of four items (16, 17, 19 and 22), which relate to the participants' feelings towards New Zealand citizenship, New Zealand culture, New Zealand identity and New Zealand accent in their Arabic speech.

By using PCA, I was able to generate two principle component weightings which were then assigned to each participant, which reflect their attitudes regarding the two factors (see Table 3.5). These weightings can be used to evaluate the attitudes of one person compared to another: the lower the score, the more positive attitudes the participant has towards the component. The attitude weightings presented in table 3.5 were generated by the PCA from the questionnaire for the 20 speakers who participated in the production part of the study. The numbers come from the PCA, which is a reflection of the loading of each PC by participant.

Table 3. 5 Two principle component weightings for 20 speakers revealed by PCA of the Attitude Questions with their Pseudonyms

Name	**Generation**	**PC1**	**PC2**
Deema	1st	-1.16244829	0.679813619
Hana	1st	-0.9655664	-0.359743652
Jamal	1st	-1.34065506	-0.5299774
Kamal	1st	0.35729688	0.67676243
Manal	1st	-1.23681347	0.940979194
Abeer	1st	-0.85275746	-0.151329837
Saif	1st	-0.40486559	-0.341496795
Salma	1st	-0.40486559	-0.341496795
Mai	1st	-0.73917028	0.080905015
Faten	1st	-1.34143131	-0.0429864
Ward	1st	-1.48060505	-0.231878531
Laila	2nd	1.09671143	-1.115503637

Samera	2nd	0.56258588	-1.299358638
Hamed	2nd	-0.33639567	0.048683325
mahmoud	2nd	0.68572281	-1.261772492
Adam	1.5	-0.93861015	-1.040204148
Haithem	1.5	-0.84195338	-0.957121268
Anwar	1.5	-0.46314687	-1.466475148
Ramiz	1.5	0.98065505	-1.102483907
Lona	1.5	-0.01751743	-0.216121454

Figure 3.3 below represents the distribution of all 20 speakers by their attitudes toward Arabic (PC1) and English (PC2). The Y-axes represents the log-odds of the probability of their attitudes towards (PC1) "attitudes towards Arabic language and culture". While, X-axes represents the log-odds of the probability of their attitudes towards (PC2) "attitudes towards English language and culture" which includes attitudes towards NZE. A larger number refers to low positive attitudes towards (PC1) and (PC2). While a smaller number refers to more positive attitudes towards (PC1) and (PC2).

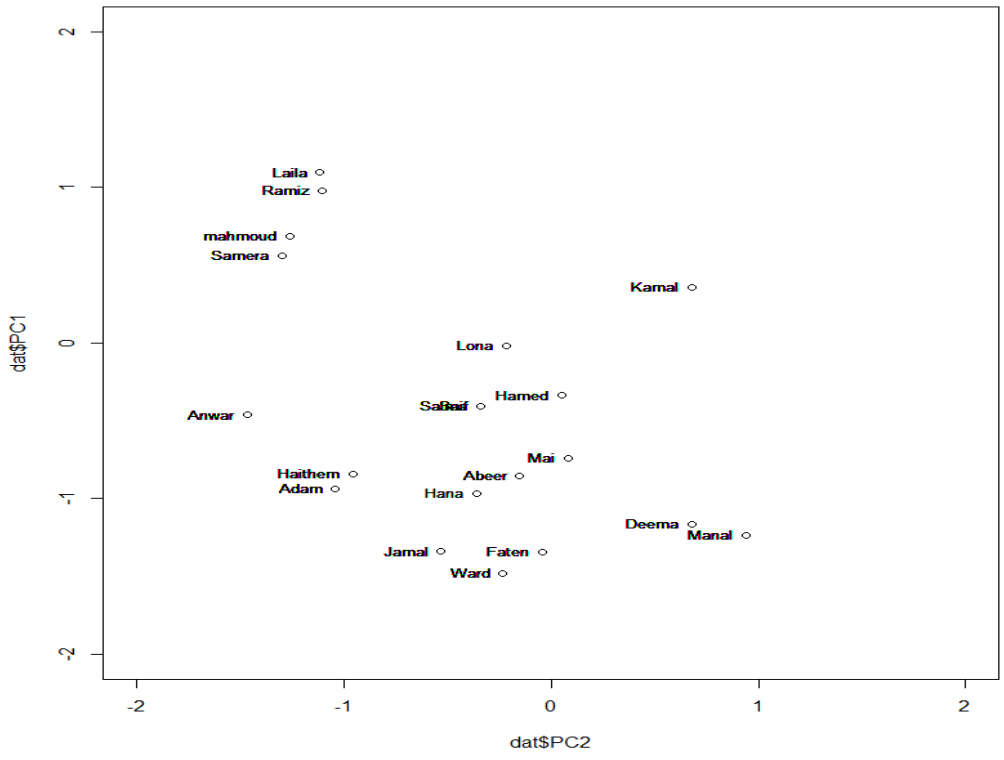

Figure 3. 3 Representing the distribution of all 20 speakers by PC1 and PC2

19 speakers appear in the figure, while one was not appear because there was two overlapped scores for "*Salma and Saif"* who are husband and wife. These two speakers have the same score maybe they were answering and discussing the questionnaires together. It is clear in the figure that *Laila, Ramiz, Mahmoud and Samera* were more positive towards (PC2) and less positive towards (PC1), while *Deema, Manal, Mai and Hamed* on the other hand, were less positive towards (PC2) and more positive towards (PC1). One male speaker *Kamal* showed that he was not positive with both (PC1) and (PC2) while the rest of the speakers *Lona, Salama, Abeer, Hana, Anwar, Haithem, Adam, Jamal, Faten and Ward* showed that they were positive towards both (PC1) and (PC2). This descriptive analysis and the results will be used in the discussion (see section 5.3) to check whether the quantitative results in the questionnaire match with the participant's linguistic behavior and with their qualitative results in the interviews.

The next sections discuss the methodology used in conducting the interviews, the speakers, the variables, the procedure, Elan software, 'ArabEng' corpus, LaBB-CAT, auditory and acoustic analysis, measuring formant frequency, data coding and the mixed effects model.

3.3 Interviews

I used sociolinguistic interviews as means of collecting my Jordanian data because it is a well-tested, successful and efficient tool to elicit speech data (Labov, 1984; Meyerhoff et al., 2015). Each interview lasted from half an hour to forty five minutes. The setting of the interviews was wherever most convenient for the speakers, usually my home, UC or their own homes.

The semi-structured interviews were designed for quantitative and qualitative analysis of the production part and involve five main parts with a total of 35 items (see Appendix two). The interview started with background information, language proficiency, language use in different domains, language attitudes and finally language and identity. The first three sections of the interview were conducted in Arabic language, while the fourth and fifth sections were conducted in English. The attitudinal questions in the interview were based on questions generally found in the literature on LMLS, such as Al-Sahafi (2010), Anikó Hatoss (2013), Sawaie and Fishman (1985) and Tawalbeh (2017) and language production and variation see Drummond (2012), Haddican et al. (2013) and Xuan Wang (2017).

The recordings of the last two sections (fourth & fifth) of the interviews fed into the ‘‘ArabEng’ corpus which formed the basis for the language variation and production analysis in the thesis. The aim of conducting these two parts in English was to analyse the speakers’ production of some phonological variables. The first three sections were done in Arabic to make sure that all speakers could speak at their ease in the Arabic language, and it was like a preface to the English interview.

The interviewers gave the information sheets and the consent forms to potential participants before they started the interviews. After they read through the information sheet, participants were given the opportunity to ask questions, sign or withdraw, if they wished. We told the participants that the interviews would be conducted in both Arabic and English. We noticed that the participants were happy and relaxed about using both languages except one female speaker from the second generation (Laila), who felt embarrassed about her Arabic language proficiency. All other speakers were at ease with Arabic and English and had no problems in speaking them at all with some generation differences in their language proficiency in both languages.

Speakers in the interviews were given the opportunity to elaborate their responses when answering any question during the interviews, and I myself and my wife, as the interviewers (see section 3.3.1), also encouraged the speakers to talk freely about the questions. Speakers thus had enough time to self-introspect and recover more information to form a decision.

Indirect questions also assisted to elicit more genuine attitudes from the speakers in the interviews. Participants didn’t know exactly what was being studied, the purpose of the study was made less clear to them; they were not aware that the researcher was interested in their attitudes towards the language and in their production of English language. Regarding the issue of deception, the informants were debriefed, by informing them the aims, procedures and the scientific value of the study as soon as possible after their participation in the study and allowed them to withdraw at this stage if they wished (Smith & Mackie, 1995).

However, participants may consciously hide their attitudes for reasons of social desirability. This matter is more likely to happen in face-to-face interviews compared to self-administered questionnaires (Krysan, Schuman, Scott, & Beatty, 1994). For example, Hatchett and Schuman (1975) found that white speakers would hide their negative opinions about African-Americans when the interviewer was black rather than white. Due to the sensitive nature of the language,

attitude, identity, culture and religious questions, participants may have avoided showing their negative attitudes if they were talking to someone from a different community. Our own positions and status in the community as indigenous Jordanians facilitated to elicit more genuine attitudes from the speakers. However, we still need to take into consideration that positive attitudes towards an ethnic language may not translate into positive actions to maintain and use it.

3.3.1 Speakers

Participating in interviews can be problematic especially for female Muslims who are originally from conservative countries or cities where it is not allowed for a researcher to knock on the door of a person without introduction and ask him for tape-recorded speech or ask him to interview his wife, sister or mother, or ask him for the permission to interview his wife on her own. Because of the restrictions forced on them by the cultural and traditional norms and sometimes by religion, Arab women are generally not willing to be interviewed or tape-recorded by a male interviewer see Al-Jehani (1985), Al-Khatib (1988) and Tawalbeh (2017). So, in order to avoid embarrassing them, I was assisted by a female interviewer to interview the female participants. My wife, who has a Bachelor degree in English language, conducted the interviews with all female Jordanian Arab speakers after I had given her some training to ensure we both followed the same interview procedures.

The speakers in this part of the thesis (see Table 3.7 for details) were 20 proficient bilingual speakers of English and Arabic. Speakers were chosen based on their age at arrival in New Zealand (generation), from the participants who had completed the questionnaire discussed in Section 3.2.

The questionnaires included a section at the end where I mentioned that I would conduct interviews later and asked them to contact me if they were interested in participating. Some of the participants showed their willingness to participate in the interviews once they handed back the questionnaires to the interviewers, some of them wrote their names, and emails. They were 79 participants who didn't do the interview and the 20 who did gave their consent to be followed up. The speakers were interviewed in different places according to their preference, in Arabic and English for around half an hour to forty five minutes each, resulting in about ten hours of English recordings in total, which formed the 'ArabEng' corpus.

The structure of the data samples for the questionnaire and interviews is summarized in Table 3.6.

Methods	**Male**	**Female**	**Total**
Questionnaire	57	42	99 (all over 18 years old) ((64 participants - 1st generation/Adults), (20 participants - 1.5 generation), (15 participants - 2nd generation).
Interviews	10	10	20 (who had first completed the questionnaire) ((11 participants - 1st generation/Adults), (5 participants - 1.5 generation), (4 participants - 2nd generation).

Table 3. 6 Sample sizes

The speakers who participated in the interviews were all Jordanians, with 10 speakers of each gender. The table below gives the more detailed demographic information for the 20 speakers.

Table 3. 7 details of the interview participants at the time of the interview in 2017

No.	**Pseudonyms (gender)**	**Generation**	**In Work/ Not in Work**	**Notes**
1	Hamed (M)	2nd	In work	Born in Auckland in 1998. Went back to Kuwait until the age of 16. Came back to NZ in 2014. Studying at UC.
2	Mahmoud (M)	2nd	In Work	Born in Kuwait in 1993. Came to NZ in 1998, went back to Kuwait in 2002. At age 18 joined UC.

3	Samera (M)	2nd	In Work	Born in Jordan in 1998. Came to NZ at the age of 2. Studied at NZ schools and about to join UC.
4	Laila (F)	2nd	In Work	Born in 1995 in UAE. Came to NZ in 1997. Studied at NZ schools and she is now a student at UC.
5	Anwar (M)	1.5	In Work	Born in 1983 in Iraq. Came to NZ in 1996 as a refugee, aged 13. Studied in NZ schools and later at UC.
6	Adam (M)	1.5	In Work	Born in 1986 in Kuwait. Came to NZ in 1995, aged 9. Studied in NZ schools and later at UC.
7	Haithem (M)	1.5	In Work	Born in 1985 in Jordan. Came to NZ in 1998 aged 13. Studied in NZ schools and later at UC.
8	Ramiz (M)	1.5	In Work	Born in 1983 in UK. Came to NZ in 1998, aged 15. Studied in NZ schools and later at UC to become.
9	Lona (F)	1.5	In Work	Born in 1989 in Saudi Arabia. Came to NZ in 1998, aged 9. She went back to UAE in 2000 and came again to join UC at the age of 18.
10	Jamal (M)	1st	Not in Work	Born in Kuwait in 1966. Came to NZ in 1996 till 2000, and then went back to Kuwait. Returned to NZ in 2014.
11	Kamal (M)	1st	In Work	Born in 1997, in Jordan. Came to NZ in 2002. Studied at Lincoln University.
12	Saif (M)	1st	In Work	Born in 1966 in Jordan. Came to NZ in 2001.
13	Ward (M)	1st	In Work	Born in Jordan in 1982. Came to NZ in 2014, aged 32.
14	Deema (M)	1st	Not in Work	Born in Kuwait. Came to NZ in 1996 Lived in Auckland till 2000, then went back to Kuwait and finally came back to NZ in 2014.
15	Hana (M)	1st	In Work	Born in 1990, in Jordan. Came to NZ in 2000, aged 20. Works as a teacher in a preschool in NZ. Married.
16	Manal (F)	1st	Not in Work	Born in Palestine in 1955. Emigrated to NZ with her family in 1996 from Iraq, aged 41.

17	Abeer (M)	1st	Not in Work	Born in Jordan in 1984. Came to NZ in 2010, aged 26. Has MA in Engineering. Housewife.
18	Salma (F)	1st	Not in Work	Born in Jordan in 1968. Came to NZ in 2001, aged 33. Housewife. Regular visitor to Jordan.
19	Mai (F)	1st	In Work	Born in 1954, in Palestine, brought up in Kuwait. Travels a lot. Came to NZ in 1995, aged 41. Has a PhD Lived in US for 9 years.
20	Faten (F)	1st	Not In Work	Born in 1966 in Palestine. Came to NZ in 1998, aged 32. Housewife. Not regular visitor to Arab countries.

*All names are pseudonyms

3.3.2 The Variables

As noted above, two groups of variables were analysed in the recordings of the English sections of the interviews:

1. The two consonants ING and intervocalic /t/.

2. The three short front vowels KIT, DRESS and TRAP.

The ING variable, the intervocalic /t/ variable and the three NZE short front vowels KIT, DRESS and TRAP are among variables which have been examined in many other English speech communities around the world, (Bell, 2000; Drummond, 2012; E. Gordon, 1998; Hay & Foulkes, 2016; Hazen, 2006; Labov, 1966, 2001b; Maclagan & Hay, 2004; Reid, 1978; Trudgill, 1974). The voicing of the intervocalic /t/ represents an innovation in NZE and the three vowel variables were chosen for their distinctive properties in NZE. While, The ING variable has been found to be a stable marker in sociolinguistics and stratified across all English-speaking countries.

3.3.3 The Procedure

The speakers were recorded with an '*H4n Zoom audio-recorder'*. The H4n Zoom recorder has many benefits for this type of research. The H4n uses WAV and MP3 recording formats. I used WAV since it does not compress the audio signal in the way MP3 does. This recorder is solid state, which means it records directly to flash memory. Zoom also includes high-quality internal

microphones that can be set to a variety of angles. This helped me get quality recordings from speakers regardless of seating positions and furniture arrangements at the place of conducting the interviews, as well as did not have to put microphones on respondents, which resulted in more relaxed interviews. It also helped me avoid the noise floor created by the recorder itself, such as when starting or changing settings.

I had tested the recording equipment at different recording levels in quiet and noisy environments to ensure a good quality of the speaker's linguistic production. Since awareness of the object of the study may affect speakers' behavior, I was not able to tell the speakers what I was really interested in before conducting the interviews. However, since many participants knew that my field of study was linguistics, they will have suspected that I was interested in their language, so I did tell them this. After finishing the interview I explained the real purpose of the study and the purpose of the recordings to the speakers. The next three sections discuss the software and the corpus that I have used for extracting and analysing the data.

3.3.4 ELAN Software

The recorded data in WAV format were uploaded into the speech annotation software ELAN. ELAN is a software tool that helps to create time-aligned annotations of audio and/or video recordings (Wittenburg, Brugman, Russel, Klassmann, & Sloetjes, 2006). Time-aligned annotations refer to the connecting of annotations to the appropriate parts of audio (visual) media files. These annotations could be words, clauses, sentences and they can be produced on multiple layers, named tiers. The tiers in ELAN have a hierarchical relation. They are organized as parent-child relationships by the tier hierarchy. The main advantages of ELAN are that it is free, open source software, its interface is user- friendly, and it is continuously being upgraded in response to user recommendations (see for more information about Elan software Rohlfing et al., 2006).

The use of ELAN "allows for transcription, extracting, coding, preparation of data for statistical analysis, calculation of some basic frequency statistics, and creation of a concordance[6] all within one program" (Nagy & Meyerhoff, 2015, p. 4). Once I had extracted the Wav files, the first task was segmenting and annotating the interviews. Having time-aligned annotations means that I have a direct connection to a media file that contains stretches of natural speech

[6] A Concordance is "a table of all of the occurrences of a linguistic item in a corpus, presented within their linguistic context"(P. Baker, 2010, p. 21).

that I am analysing. This permits me to take account of all contextual data as well as adding more credibility to the analysis since the original data can be easily retrieved and accessed. The second task that I conducted in ELAN was transcribing the Jordanian speech auditorily. I transcribed 10 hours' worth of Jordanian conversations. The next steps were the creation of the 'ArabEng' corpus and the use of LaBB-CAT, which is discussed below.

3.3.5 The 'ArabEng' corpus

The data for the production analysis has been used to establish the 'ArabEng' English corpus. The 'ArabEng' corpus consists of the conversational data from this study. The ELAN transcripts and associated audio files were uploaded into LaBB-CAT (for more information see section 3.3.6), to produce a searchable, fully time-aligned collection of recordings of Jordanian speakers from Christchurch. The 'ArabEng' corpus contains speech data from speakers aged between 18 to 63 years.

3.3.6 LaBB-CAT

LaBB-CAT is the Language, Brain & Behaviour Corpus Analysis Tool (Fromont & Hay, 2008). It is a browser-based online software tool developed at the University of Canterbury which stores recordings and transcripts together (Fromont & Hay, 2008). LaBB-CAT is basically a repository for time-aligned transcripts of audio/video recordings. Transcriber, Praat, or ELAN can be used to generate a document lining-up the transcript text with the corresponding location in the audio/video recording. When the transcript is uploaded to LaBB-CAT, more information about the speakers and the transcripts can be stored.

The transcripts can be automatically and manually annotated with the help of CELEX (Baayen et al., 1995) and also with the help of *the Hidden Markov Model Toolkit* (HTK) (see Young & Young, 1993).The transcripts can be time-aligned at the level of phoneme. Once transcripts and annotations have been completed, searches can be restricted to transcripts which meet specific criteria, such as age, gender, generation, LoR of the speakers, corpus the transcripts belongs to, etc. By simply entering the segment(s) of interest in the search field, a scholar can search the corpus and extract timing information for segments automatically.

The recordings gathered for the 'ArabEng' corpus were orthographically transcribed, automatically time-aligned at the utterance level and manually checked for alignment correctness. Automatic time-alignment at the level of the word and phoneme was done.

In its present form ‘ArabEng’ allows for acoustic analysis of the segments in LaBB-CAT through direct interaction with Praat (Boersma & Weenink, 2013). The researcher can open and check utterances using Praat grids (Figure 3.4), or specific information/audio can be extracted, edited and played. The LaBB-CAT also allows researchers to search for phonological and grammatical information in ‘ArabEng’.

When the ‘ArabEng’ corpus was ready to use, I started extracting the phonological variables that I was interested in, using LaBB-CAT. For the quantitative analysis of consonants, for example I inserted ING and intervocalic /t/ into the search field in LaBB-CAT (see figure 3.5) and the ‘ArabEng’ corpus was automatically searched for the segments concerned after I sat up what I need. In details, In order to obtain all of the ING tokens, through the LaBB-CAT, different settings were achieved. I sat up the Set Search Matrix on the orthography option, selecting across one word boundary. In regard to the regular expressions box, I sat up the orthography box with the command **(.*ing.*)**. I selected “only search transcripts for which these are the main participants” and “only match words that are aligned” with showing “1 word before/after each match”. 678 tokens were extracted. The tokens returned by the search were extracted in CSV files with all the information needed, such as speaker gender, generation, LoR, URL, etc.

Regarding the intervocalic /t/, I selected phonemes and orthography options across one-word boundaries from the Set Search Matrix (see figure 3.6). I wrote the below commands in the phoneme slots: **.*[IE\{@UVQi#\$u3]t[IE\{@UVQi#\$u3].***, 551 tokens were extracted. Regarding the intervocalic /t/ across two-word boundaries, I have checked that on the Set Search Matrix (see figure 3.7). The only difference was the command. So, I wrote the below commands in the phoneme slots: **.*[IE\{@UVQi#\$u3].*]** followed by **t[IE\{@UVQi#\$u3].***, 591 tokens were extracted. Then, the options (only search transcripts for which these are the main participants and only match words that are aligned) were selected within one word before and after of each match. After that, manual auditory task started by listening to the variables of interest and identifying and entering the variant in a new column called “variants” in the same CSV files. The variants were checked more than four times by me and by random auditory checks by the supervisor to make sure that the variants were correctly identified. An estimated 30% of tokens were checked, for both ING and intervocalic /t/. Finally, the CSV files were uploaded to R to perform the statistical analysis.

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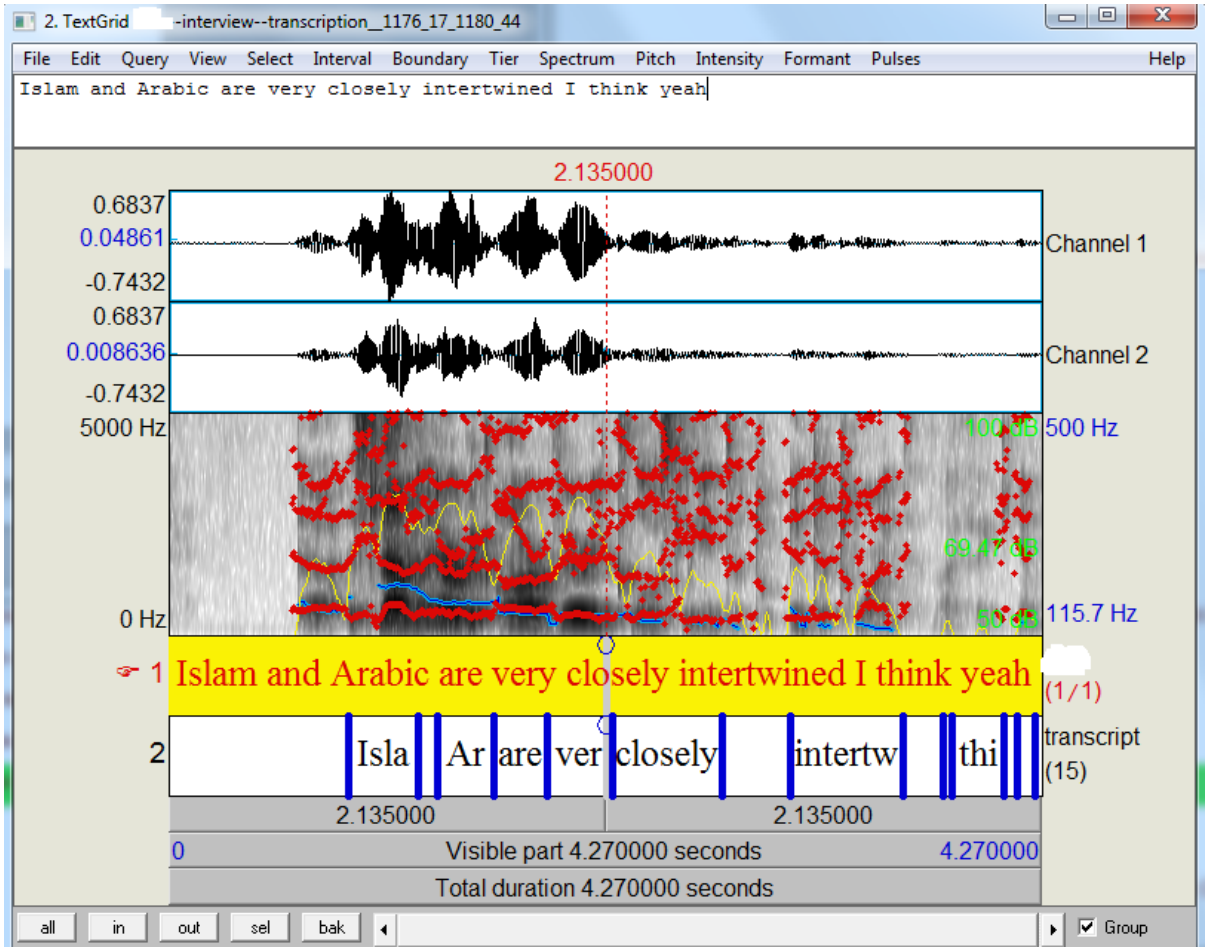


Figure 3. 4 Praat interface

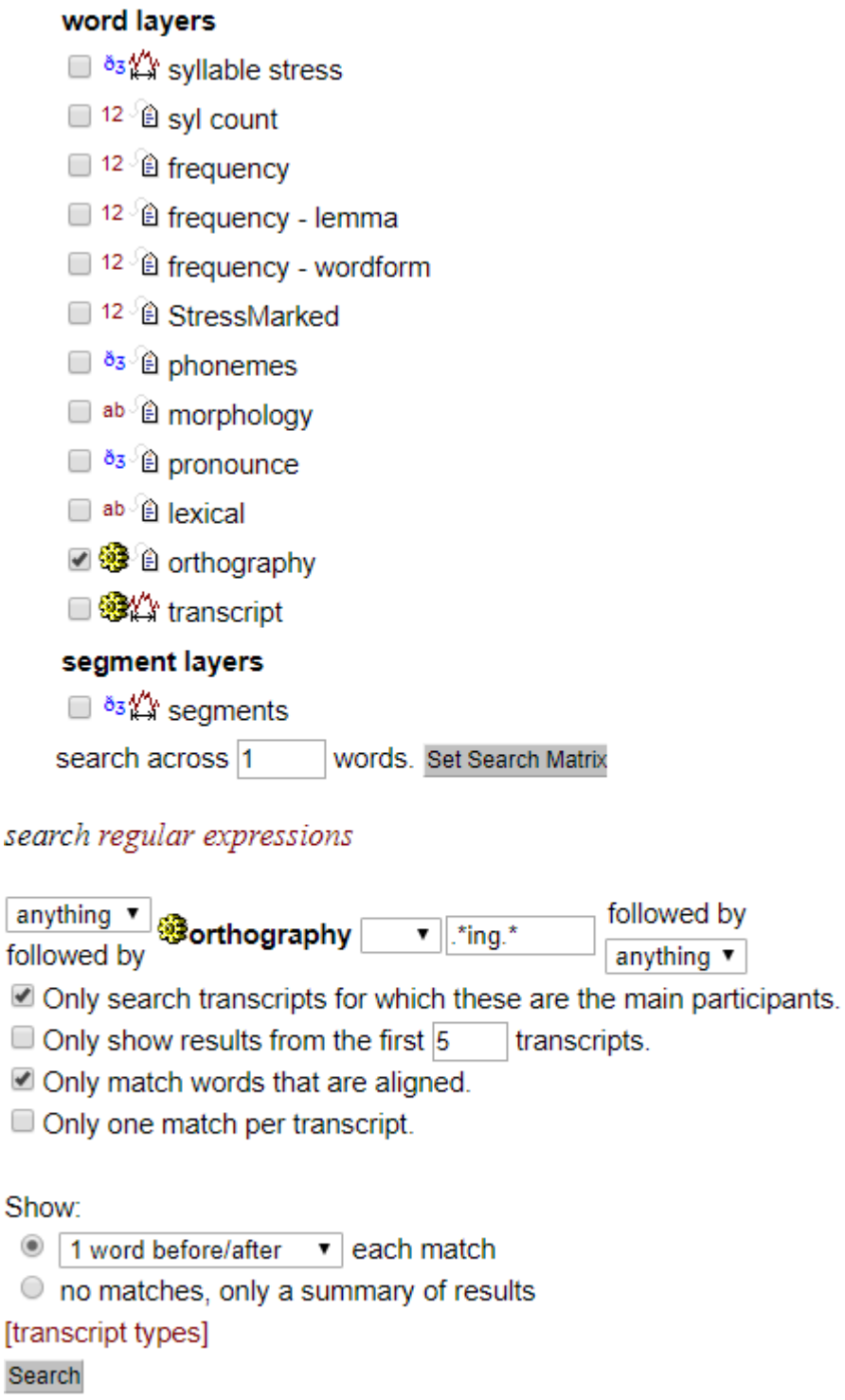


Figure 3. 5 The search function in LaBB-CAT for ING variable

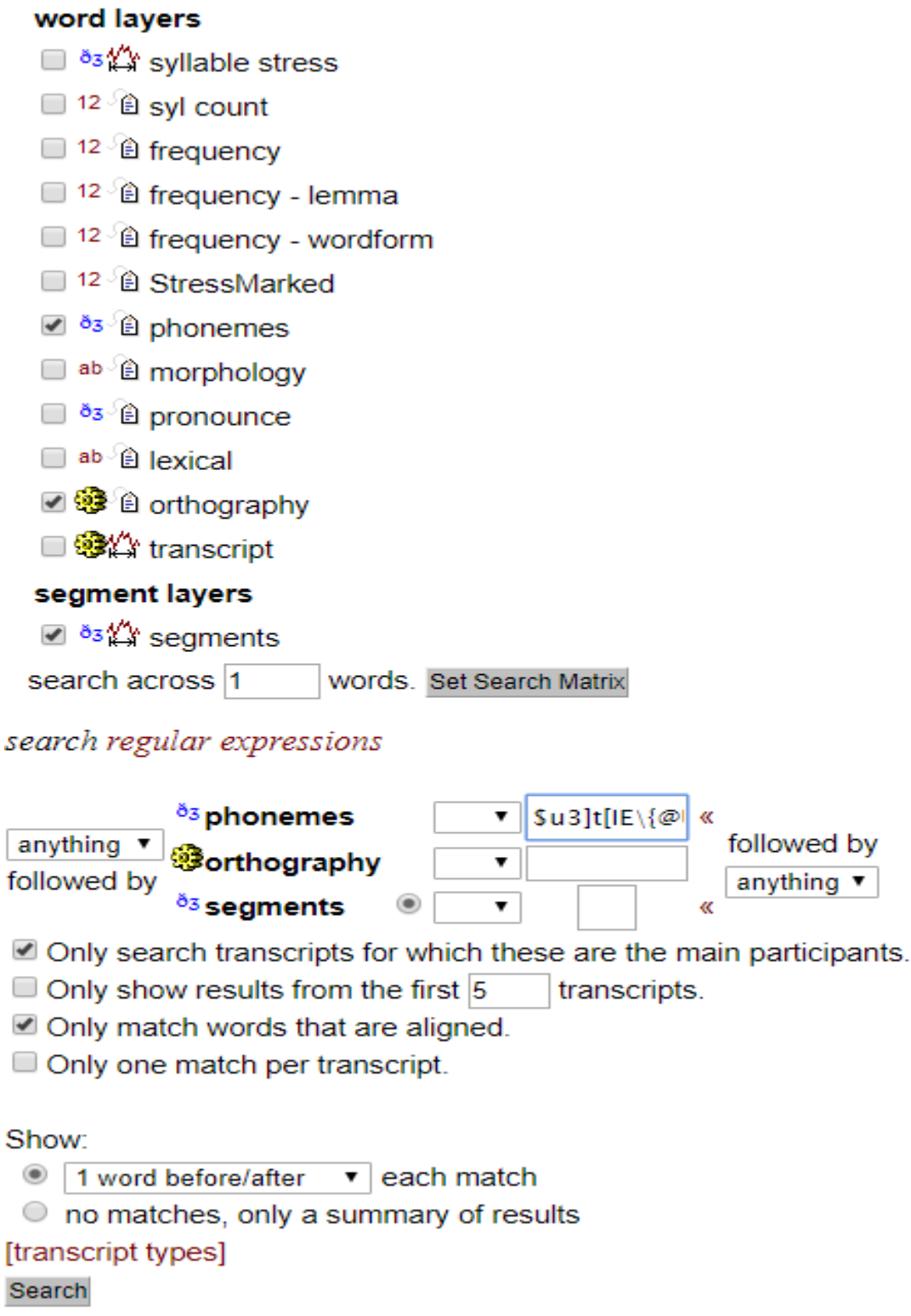


Figure 3. 6 The search function in LaBB-CAT for intervocalic /t/ in one word boundary

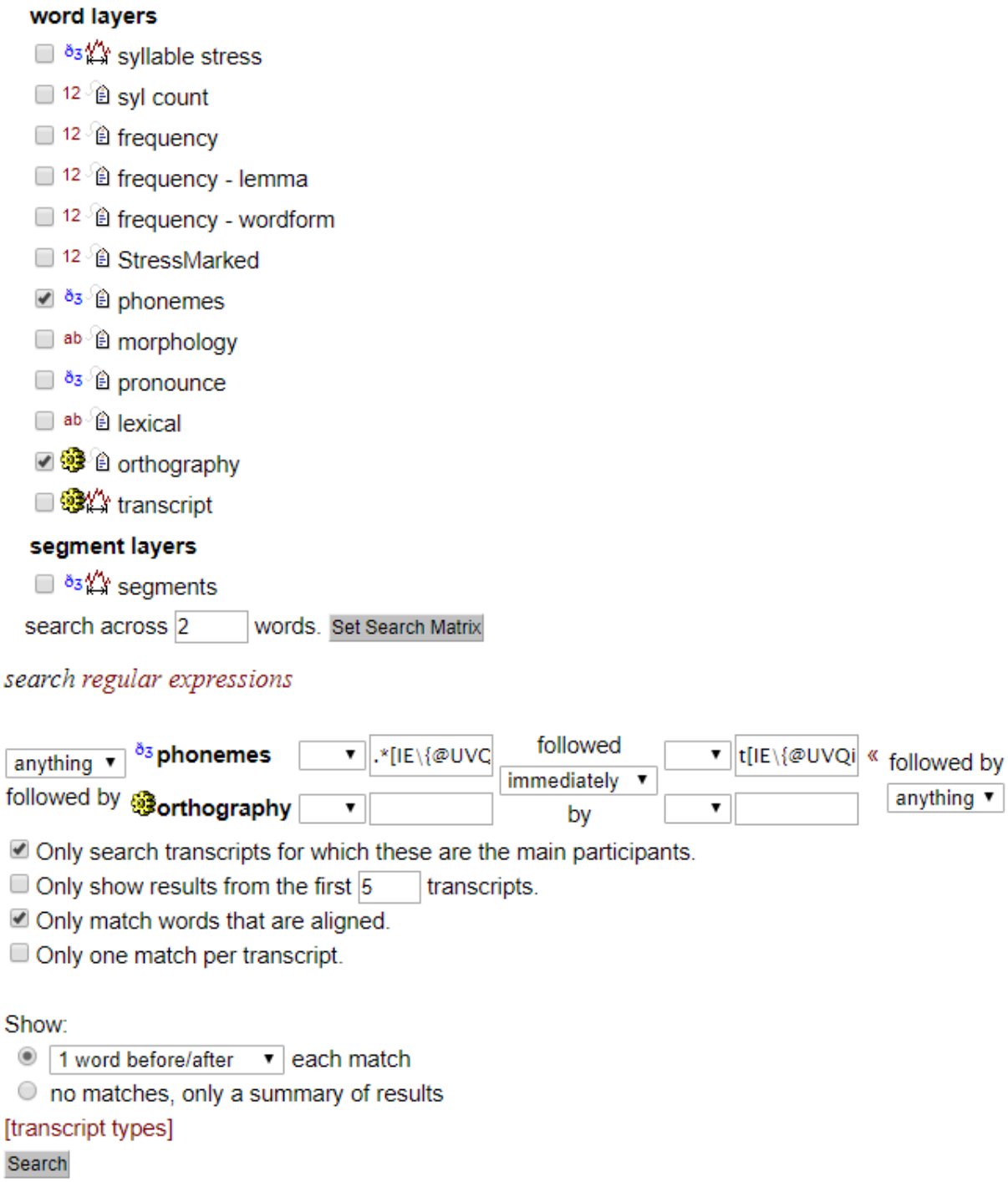


Figure 3. 7 The search function in LaBB-CAT for intervocalic /t/ in two words boundary

The story for vowels was different. I selected phonemes and orthography options across one-word boundary from the Set Search Matrix (see figure 3.8). I wrote the below commands in the phoneme slot: **.*[cCEFHiIPqQuUV0123456789~#\{\$@].***.Then, the options (only search transcripts for which these are the main participants and only match words that are aligned) were selected within one word before and after of each match. I extracted all the monophthongs first, 35776 tokens were extracted on a CSV file using LaBB-CAT. The CSV-file was uploaded onto the LaBB-CAT software again. Figure 3.9 illustrates how F1, F2 and F3 were extracted from the 'ArabEng' corpus in a CSV file. Then several features were determined such as transcript and speaker from the column option, choosing F1, F2 and F3 selecting the mid-point (e.g., 0.5) from the Window offset and finally, "Run Batch" feature was selected to gain the formants. The CSV file included all information, including participants, age, gender, transcript attributes, URL, target segments start and target segments end…etc. When the segments and their starting and ending points had been determined, vowel formants for F1, F2, and F3 could be extracted at a set point (e.g., 0.5) and then measured using Praat.

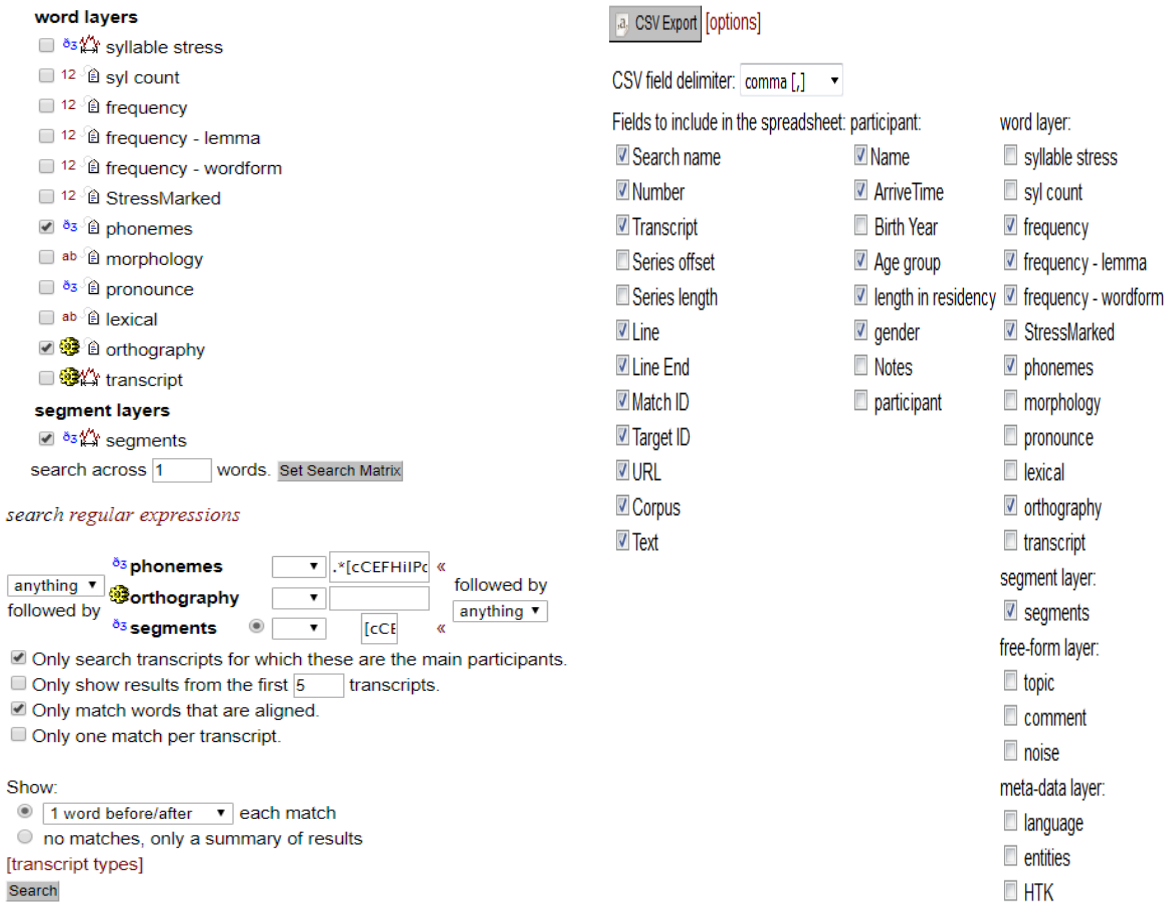


Figure 3. 8 The search function in LaBB-CAT for vowels

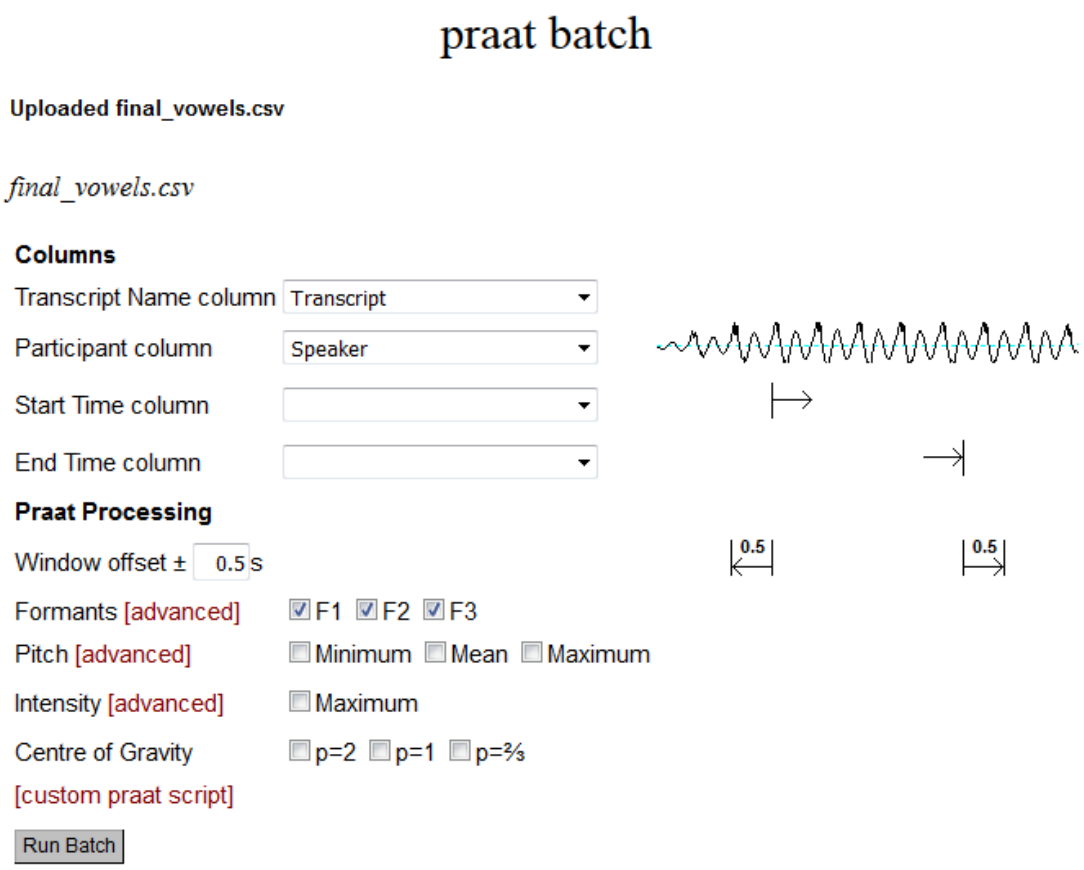


Figure 3. 9 the Praat batch in LaBB-CAT

I have used LaBB-CAT also as a tool to search the 'ArabEng' corpus to get textual data from speakers. In other words, I used it like (NVivo), a well-known computer package for managing textual data. I used it to search for speakers' attitudes, identities and cultures. I searched the interviews according to gender, generation and speaker. Extracts were taken to support and explain my production part results (for more information see section 5.2).

3.3.7 Auditory data Analysis

Many of the previous studies on consonants (Holmes, 1994, 1995a, 1995b) to more recent ones Alshboul (2018) and Za'rour (2018), have relied on auditory analysis of the consonants. Although there is sometimes a distinction made between FLAP /t/ or GLOTTAL STOP /t/, usually the researchers distinguish between FLAP, CANONICAL, DROPPED or GLOTTAL STOP based on auditory coding (Alshboul, 2018; Holmes, 1995b). For this study, and probably in all others, the consonants had to be listened to several times before making a decision. I performed an auditory analysis as part of the

initial coding of the two target consonants (ING and /t/). Each of the tokens was analysed using mixed effects logistic model. The auditory analysis was an effective and efficient method of distinguishing between the variants of intervocalic /t/ and ING in the participants' speech.

3.3.8 Acoustic data Analysis

Acoustic analysis of speech is the study of the acoustical characteristics of speech, both formal and informal speech. It includes the physical features of spoken language. These include for example, waveform analysis, voice onset time (VOT) measurements, formant frequency measurements, and so on (Rezaei & Salehi, 2006). Acoustic evidence is important to support the auditory analysis of the short front vowels. Alshboul (2018) did conduct some acoustic analysis of the short front vowels in NZE in his master thesis in Christchurch among Jordanians, but his interviews were very few (9 interviews), included only male speakers who were under and above 18 years old and had only one independent variable (generation).

In the acoustic analysis of the vowels I used the measurements of the first two formants, F1 and F2 using Praat Boersma and Weenink (2013) integrated in LaBB-CAT corpus client (Fromont & Hay, 2008). I requested LaBB-CAT to determine the mid-point of the short front vowels (F1 and F2) values. By using the formant values from the midpoint of the vowel, it is less likely that there will be an effect of the transitions to and from the surrounding sounds due to coarticulation. The measurements obtained from LaBB-CAT were in hertz. However, in order to find anatomical differences in the vocal tract among participants of varying generation, LoR, PC1, PC2, occupation and gender, and to be able to compare these values, vowels were normalized by using NORM (an online website) to determine the vowel spaces (for more information see E. R. Thomas & Kendall, 2007).

3.3.9 Measuring formant frequency 1 & 2

Formants are known by formant numbers (e.g., F1, F2, F3, and F4), numbered in succession starting with the lowest frequency formants (Rezaei & Salehi, 2006). Formant is the vocal tract resonance. Hypothetically, there is an endless number of formants, but for everyday purposes only the lowest three or four are of concern.

The frequency of F1 is oppositely linked to tongue height (e.g., high vowels have a low F1 frequency), and the frequency of F2 is correlated with tongue advancement (e.g., F2 frequency increases as the tongue position moves forward in the mouth). Low vowels /a/ and /ae/ have a high frequency of this formant (F1), whereas, high vowels such as /i/ and /u/ have a comparatively low frequency of the first formant (F1), the frequency of F1 varies oppositely with tongue height of the vowel. On the other hand, front vowels /i/ and /ae/ have a high frequency of F2, while back vowels /u/ and /a/ share a low frequency of F2, which means that the frequency of the second formant varies with the posterior-anterior dimension of vowel articulation (Rezaei & Salehi, 2006).

There are a number of factors which compromise formant accuracy. One is recording quality. My interviews were conducted in the most casual sociolinguistic settings possible. As an outcome of this, in some interviews the acoustic signal can be somewhat compromised. Background noise can obscure formants and cause them to be unclear and difficult to be seen and understand. For example, in a study considering the F1 and F2 formant values of three Arabic vowels /a:/, /i:/ and /u:/ among Palestinian and Egyptian speakers in Auckland, Al-Tairi, Watson, and Brown (2016) showed that, due to the interference from ultrasound, the outcome signals were very noisy, resulting in no analysis of high frequency sounds was appropriate. However, the acoustic energy of the first two formants (F1 and F2) for the vowels being investigated was less than 2500 Hz, which allowed a formant analysis to be performed. Al-Tairi et al. (2016) mentioned that there were mistakes in formant tracking due to the low amplitude of the high vowels /u:/ and /i:/, making it hard for the automatic formant tracker to track acoustic energy. So, they did hand correction by redrawing the formant tracks for F1 and F2 depending on a closer examination of the spectrogram of the vowels; 38% of their data was corrected.

In order to achieve one of the main objectives of this study regarding the variation between Jordanian English and New Zealand English vowel systems, formant values were calculated for the midpoint of the vowels identified, which is assumed to represent the steady state of the vowel. These formants have been used as standard measurements to examine variations between New Zealand English and other varieties (Hay et al., 2008). Moreover, many researchers argued that the first two formants are essential in explaining the configuration of vowel conventions as a means of comparison across different language varieties (Ahuja & Vyas, 2018; Khalil, 2014; E. Thomas, 2010). Khalil (2014) argued that differentiating between Egyptian English and General American English using the formant frequency resulted in a clear

evidence concerning the distinctiveness of Egyptian English and General American English varieties. Furthermore, it is highly recommended to use the formant frequencies of F1 and F2 as a means of understanding the mechanisms of the production of high/low and back/front vowels (Tahiry, Mounir, Mounir, & Farchi, 2016). Therefore, formant frequency is a highly efficient acoustic parameter which could be used to examine variation not only between languages but also dialects.

3.4 Data coding

In the following sections I will present the data coding for the two consonants (ING and intervocalic /t/) and the three NZE front short vowels (KIT, DRESS and TRAP). In addition, explaining the main statistical model used in the analysis of the production data and finally, presenting the statistical analysis techniques used in this part.

3.4.1 Consonants

3.4.1.1 ING variable

Tokens were analysed by individually listening to segments of speech in which the variable occurred anywhere in the word (word-finally and medially) in order to determine which variant of ING was used: [in], [ɪŋ], [ɪŋk] or [ɪŋg] were coded as ‘in’, ‘ing’ ‘ingk’ and ‘ingg’, respectively.

Because Arabic does not permit final /ŋ/ in coda positions (Za'rour, 2018). Sometimes I had difficulty hearing whether speakers were using a velar nasal or an alveolar. For this reason, I turned to a trained linguist (my colleague) for assistance, to double check my coding of the ING tokens for all speakers, in addition to the random checks by my supervisor. I identified 328 [ɪŋ] tokens, 197 [ɪŋg], 141 [ɪn], and 12 [ɪŋk]. Because the [ɪŋk] variant is not common among all New Zealanders and mostly found in lower social class and found rarely among Jordanian speakers who are from the 1st generation, I decided not to include it in my final analysis. 666 tokens of ING were retained in the file exported to R for statistical analysis. Logistic regression models have been used in the analysis of my consonant data.

What differentiates my study from Za'rour (2018) study, is that I only focused on investigating the social factors rather than the phonological and the grammatical factors which condition ING variations, because my interest was only in finding the effects of social factors on the variables

studied in both parts (LMLS & LVC). Moreover, I am also focusing on the contrast between native variants of ING (Ning) and non-native variants (NNing). While most previous studies had focused in their analysis in differentiating between both alveolar and velar variants, I combined the two New Zealand variants, the velar [ɪŋ] and alveolar [ɪn] together to represent the (Ning), whereas the non-New Zealand variant [ɪŋg] represents the (NNing) category. Overall, 70% of the ING tokens were (Ning) and a total of 30% of ING tokens represent the presence of (NNing). Because I investigate L2 learners of English language, and their acquisition of the NZE ING variants, it is better for me to combine both the alveolar and velar variants of ING and put them in one group (Ning) and keep the non-New Zealand variant separate (NNing). As a non-native speaker of English I am interested in investigating who produce more native-like NZE variants more than who produce velar or alveolar variants. Another important reason for this combination is my use of mixed effects logistic model for the analysis. This model works with binary data, and the most appropriate way to put the three variables in two categories is to combine the velar and the alveolar variants of ING in one group and the third variant [ɪŋg] in another group. What I did, is new in the literature and this opens the way for other researchers to get benefit from that and use robust methods in the future.

3.4.1.2 Intervocalic /t/

This study focused on the realisation of intervocalic /t/ within a word (*society, matter* and *better*), and across a word boundary (*lot of, get it* and *sort of*). Being a native speaker of Arabic, which has a wide range of stops, enabled me to recognise the variants of intervocalic [t] as I was able to differentiate among CANONICAL, FLAP, GLOTTAL STOP and DROPPED variants. In my analysis of /t/ variants, I examined how the production of intervocalic /t/ was influenced by the social variables gender, age at arrival, LoR, occupation, and attitudes.

A total of 1142 tokens of /t/ were extracted from the 'ArabEng' corpus. These were exported into a spreadsheet along with all the information regarding each speaker and token. Tokens were categorised by individually listening to the segment of speech in which the variable occurred between two vowels, word medially and word-finally across two words. The variants of /t/ were coded as (t) for CANONICAL, (d or r) for FLAP, (glottal) for GLOTTAL STOP, and (dropped) for DROPPED. In total, the corpus yielded 585 CANONICAL, 473 FLAP, 55 GLOTTAL STOP, and 29 DROPPED tokens (see Figure 4.34 chapter 4). The dropped variant was only found across word boundaries, in phrases such as *that it, sort of, it in, forget Arabic, not as,* etc. The

GLOTTAL STOP variant also occurred across word boundaries only, in phrases such as *but in, not easy, but apart, not exactly*, etc.

Because the dropped variant doesn't tell us anything about NZE specifically and not common among Jordanian speakers, I decided not to include it in my final analysis. The three variants of intervocalic /t/ included in the statistical analysis were CANONICAL, FLAP and GLOTTAL STOP. In total, 1113 tokens of the intervocalic /t/ variable were analysed, an average of just over 55 tokens per speaker. For analysis purposes, a mixed effects logistical regression model in R was used and the three New Zealand variants of /t/ were treated as a binary category (t or not t, FLAP or not FLAP, GLOTTAL STOP or not GLOTTAL STOP).

3.4.2 Vowels: KIT, DRESS and TRAP

The short front vowels KIT, DRESS and TRAP are well studied, both auditorily Bauer (1986), Bell (1997) and Hawkins (1973) and acoustically (Gnevsheva, 2015; Langstrof, 2006; Maclagan & Hay, 2004; M. Maclagan, 1982; McRobbie-Utasi, Starks, & Fraser, 2001; Scharinger, 2006; C. Watson, Maclagan, & Harrington, 2000).

I extracted all the monophthongs first, 35776 vowel formants for F1, F2, and F3, with all the information needed from all the vowels from the 'ArabEng' corpus in a CSV file using LaBB-CAT. And the short front vowels KIT, DRESS and TRAP were just a subset of those. One possible problem here is that 'bath and start' vowels are conflated by LaBB-CAT. This means that words like 'grass/bath/dance' are given the same vowel as 'start/are/park'. But for me as a speaker of Arabic these two groups may be different as some of my speakers are rhotic (and this may affect the quality of the vowel). So, manually I did recode all 'bath/start' words as either 'bath or start', depending on whether they have an 'r' in the spelling after the vowel i.e. 'dance' is a 'bath' word but 'park' is a 'start' word. And it is the same for 'thought and force' (See Al-Tamimi, 2007; Bauer et al., 2007; Hay & Sudbury, 2005; Kalaldeh, 2016). These are being included because they are the point vowels. Doing this or splitting up the 'bath/start' and 'thought/force' vowels allowed me for visual comparison with NZE speaker's vowel space. I extracted all the monophthongs first using LaBB-CAT, and the short front vowels KIT, DRESS and TRAP were just a subset of those. This subset was performed using R.

In details, I started cleaning up the vowel formant F1 values; as some alignment or measurement errors and inaccuracies and outliers may persist, so vowels whose F1 value was larger than

1000 Hz were not included and removed from the analysis and the number reduced to 34534 vowels. Then I removed outliers that are 2SD away from the mean for F1 and F2 measurements for each speaker and the number reduced to 30131 vowels.

After that, unstressed vowels were also removed for many reasons. For example, unstressed vowels are often heavily centralized towards schwa, while stressed vowels fall towards the outer edges of the vowel quadrilateral and this centralization confuses differences between vowels, and makes sound change harder to recognize (Harrington & Cassidy, 1999). Unstressed vowel tokens are most of the time heavily coarticulated, particularly when surrounded by approximants such as /r/, /l/ or /w/ (Harrington & Cassidy, 1999). Moreover, unstressed vowels sometimes don't provide useful phonetic information and this depends on what the researcher looks for of course (Harrington & Cassidy, 1999). As a result, the decision was made to exclude all unstressed tokens using this code in R (df<-subset (df, Target.StressMarked != "0"), where 0 means unstressed tokens and this resulted in a remaining total of 21324 vowels.

The following environment also was taken into consideration in coding the vowels; namely, vowels followed by lateral /l/, nasals /m,n,N/ were removed because they are affecting the production of the preceding vowel, such as in "child and chid, ban and bad, pen and pin", (See Bauer, 1986 for the influence of these sounds on the preceeding vowels) and this resulted in a remaining total of 14177 vowels. Finally, there were also several environments with only few tokens, such as vowels followed by nothing, or letters as (Q, A, Z, or numbers). So, I removed them and this resulted in a remaining total of 14165 tokens.

After that, the CSV file for all the vowel formants and values of all the speakers uploaded into NORM and normalized using Lobanov normalization method to allow for comparison among the speakers and to determine the vowel spaces. NORM is known as a web-based software package developed to help researchers (e.g., phoneticians and sociolinguists) in normalizing and plotting their vowel formant data. There are number of the normalization methods applied in NORM (e.g., the Lobanov, Nearey, and Watt & Fabricius methods) (Thomas & Kendall, 2007). I am using NORM because it allows me to run a number of the methods, quickly compare the results, and determining which may be best and most suited for my dataset (Thomas & Kendall, 2007).

3.4.2.1 Mixed effects model

Mixed-effects modelling with R Baayen, Davidson, and Bates (2008) was the main statistical technique used in this thesis. A mixed model is a statistical model that includes both fixed effects and random effects. Random effects are clarifying variables that are considered as appearing from random causes (e.g., word and speaker) and considered as a source of variance that the model allows us to control for (Winter, 2013). One statistical criticism of regression models without random effects is that outliers can affect reported trends (Drager & Hay, 2012). Furthermore, simple regression models group individuals together into stratified groups and the models don't provide any information about individual variations (Drager & Hay, 2012).

Mixed-effects modelling has gained increased acceptance in Sociolinguistics in recent years as it allows the researcher to consider all factors at once that may contribute to the understanding of the model of the data (Baayen et al., 2008). Traditional statistical tools like ANOVA, VARBRUL or GoldVarb, are less flexible and less powerful by comparison, and mixed effects models provide more accurate results (Baayen et al., 2008; Johnson, 2009).

A mixed effects model can also be defined as a tool that enables us to investigate the variation at the individual and the group levels together. Mixed effects models allow individual speakers to vary in the model as "random effects." This means mixed effects models allow us to check whether there are differences among groups that strongly exist across the dataset, and we can be sure that the patterns are not skewed by one or two individuals (Drager & Hay, 2012).

In the case of my statistical models in the thesis, I added a random effect for speaker, which captures the idiosyncratic variation that is due to individual differences. These idiosyncratic variations of the speaker may not be of interest in the current research, but they are controlled for by the model if speaker is included as a random intercept. A random intercept for a certain vowel/consonant permits the effect to vary within that vowel/consonant: for example, one speaker can in general have a higher DRESS vowel than the next speaker.

"(1|speaker)" and "(1|word)" mean "suppose an intercept that's different for each "speaker" and "word", where "1" stands for the intercept here. In other words, the model should expect that there's going to be multiple responses per speaker and word, and these responses will depend on each speaker's and word's baseline level. This effectively resolves the non-independence that arises from having multiple responses by the same speaker or multiple uses of the same word. For example in the current study, some speakers are normally more likely to adopt NZE features than others, regardless of their gender or their generation or other related

social factors embedded in the fixed effects model. Random slopes might also be included in the random effects structure, which permit the effects to vary across different speakers/words. For example, the effect of speaker's attitude on his/her production of DRESS vowel might be more New Zealand like than it is for others. So, including random effects/intercepts and slopes increases the statistical power for identifying between-speaker and between-word effects (Bates, Kliegl, Vasishth, & Baayen, 2015).

Linear-mixed effect models permit us to model fixed and random effects on a dependent variable (Baayen, Davidson, & Bates, 2008). Fixed effects are independent variables which are known to be non-random, such as the generation in the current study. I ran a mixed-effects model for all speakers for each vowel DRESS F1 and F2, KIT F1 and F2, TRAP F1 and F2, with the normalized formant values as the dependent variable. The full model included an interaction between generation and gender, as well as following phonological environment, frequency, PC1 and PC2 as fixed effects, with word and speaker as random intercepts. If a fixed effect was found to be non-significant, it was excluded and the model was re-run, after that the two models were compared with an ANOVA test to test which model significantly was better to use. For example if I have two models (m1 and m2), I run the two models using ANOVA test, then ANOVA test presents the results and one important result is the "*Akaike information criterion" (*AIC). The value of AIC depends on the concept of statistical deviance. Null deviance relates to how well the response (dependent variable) is predicted by a model with only the intercept (the null model, no added factor groups). Residual deviance relates to how well the response is predicted by a proposed model. The smaller AIC values are better when comparing two or more models. For example AIC for M1 model = 175.65 is better to use than AIC M2 model = 177.46. Finally, following phonological environment was left in the model because I wanted it as a control (better) and I just didn't analyse it.

3.4.2.2 Statistical analysis techniques

R was used to analyse the quantitative data collected through the interviews (R Core Team, 2018). I employed the following types of tests in the statistical analysis of the consonant and vowel production:

- The main statistical technique used in this thesis in the analysis of the vowels was mixed effects linear regression modelling (Baayen et al., 2008). So, for continuous data, simple linear regression models have been used.

- Mixed effects logistic regression modelling was used to analyse the two selected consonant variables (ING and intervocalic t), which were coded as categorical variables using the *glmer()* functions in the *lme4* library (Bates, 2005, 2007). So, Logistic regression models have been the method of choice for binary data.
- ANOVA test was used to compare models to determine the suitable one to use in the analysis. The "Plot allEffects" function and "plotLMER.fnc" in R were used to display the results.

Chapter 4: Data Analysis and the Results

Chapter 4 consists of two parts. The first part focuses on the LMLS quantitative results collected from the Jordanian community in Christchurch. It presents the general patterns in Jordanians' reported language proficiencies, use and attitudes and their significant correlations with the social factors. The second part provides the quantitative analysis of the interview data for ING and intervocalic /t/ variables, and the three NZE short front vowels KIT, DRESS and TRAP, and their correlations with the social factors. A brief discussion concludes the chapter.

4.1 Questionnaire

In this section, I present the analysis of the questionnaire. Many demographic factors have been said to influence language maintenance and shift, such as gender, generation, time of immigration, age, LoR, religion, identity and attitudes (for more information see Al-Khatib & Al-Ali, 2005; Holmes et al., 1993; Lee, 2013; Sawaie & Fishman, 1985; Tawalbeh, 2017). The focus in this questionnaire was on two independent factors: LoR and the generation of the participants. It has been argued that LoR and generation can significantly influence language proficiency, use and attitudes of the immigrants (see Al-Khatib & Al-Ali, 2005; Al-Sahafi, 2010; Tawalbeh, 2017). Gender was found not statistically significant, but Anova test was working better in its existence in the model. The lack of gender effect may seem surprising in the data, but it is really work effect rather than gender effect. Because when I removed gender from the model, work stays significant in the model, but when I removed work, gender was not significant. For this reason, gender was deleted from further analysis.

The questionnaire focused on investigating three major topics which will be successively analysed:

1. Jordanians' self-reported language proficiency in English and their ethnic language/s,
2. Patterns of language use in different domains (e.g., home, friendship and religion), and
3. Attitudes towards both Arabic and English languages, identity and culture.

4.1.1 Reported Language Proficiency

This section outlines the linguistic proficiency (understanding, speaking, reading, and writing skills) of the participants in both Arabic and English based on their self-assessments on a five-

point scale (1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent). I combined the four language skills into two main categories, namely, *oral skills*, including both speaking and listening skills; and *literacy skills*, including reading and writing skills. The participants' self-assessment of oral skills in Arabic and English is presented first, followed by literacy skills in both languages.

4.1.1.1 Oral Skills in Arabic and English

As can be seen from Figure 4.1, participants generally rated their ability in Arabic oral skills as 'excellent' (median = 5.0) which are the thick black lines in the graphs, while they rated their ability in English oral skills as 'very good' (median = 4.0). The participants perceived their abilities in understanding (Mean = 4.475) and in speaking (Mean = 4.566) Arabic as slightly higher than in understanding (Mean = 4.01) and in speaking (Mean = 4.00) English.

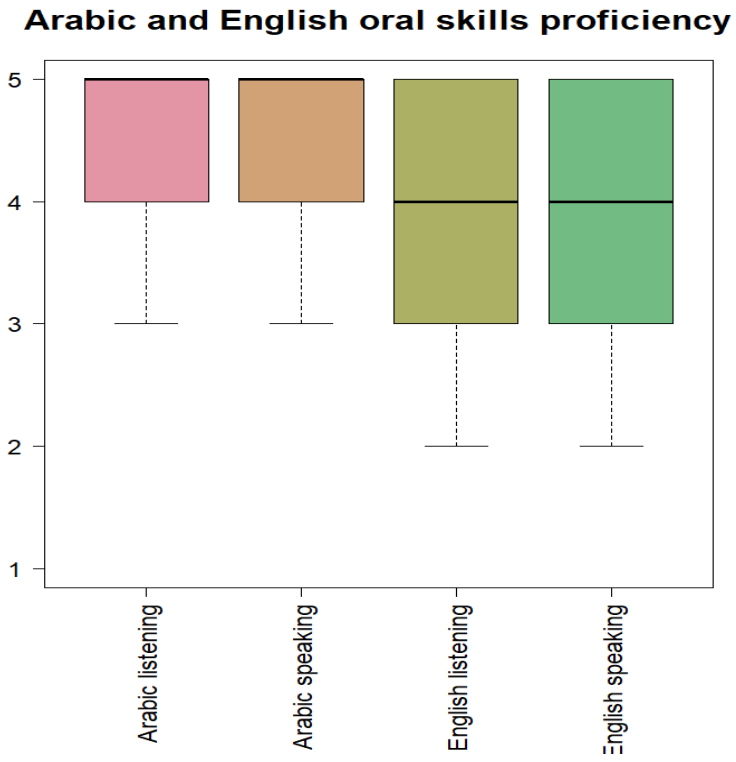
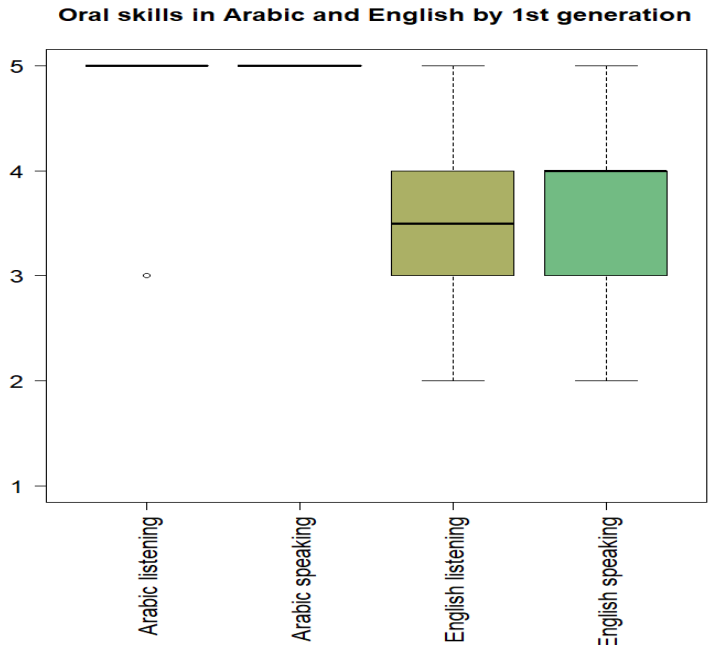


Figure 4. 1 Participant's oral skills in Arabic and English

Figure 4.2 below shows the median scores for the participants and the influence of the independent variable (generation) on their oral proficiency in both languages with a reference to their mean score in each individual skill and sometimes to their median scores which are the thick black lines in the graphs. It appears that there is a clear difference in Arabic oral skills among different generations. It appears that the first generation participants had reported no

difficulties in understanding (Mean = 4.969) and speaking (Mean = 5.00) Arabic language, and they evaluated themselves as “excellent”, compared to 1.5 and 2nd generation participants who showed lower proficiency as “very good and good” in understanding (Mean = 3.9 and 3.3) and “very good and good” in speaking (Mean = 4.2 and 3.45) Arabic respectively. For the English language, on the other hand, it appears that 1.5 and 2nd generation participants were more proficient or “excellent” in understanding and speaking skills (Mean = 4.85), than the 1st generation participants who evaluated themselves as “good’ in understanding and speaking (Mean = 3.5).



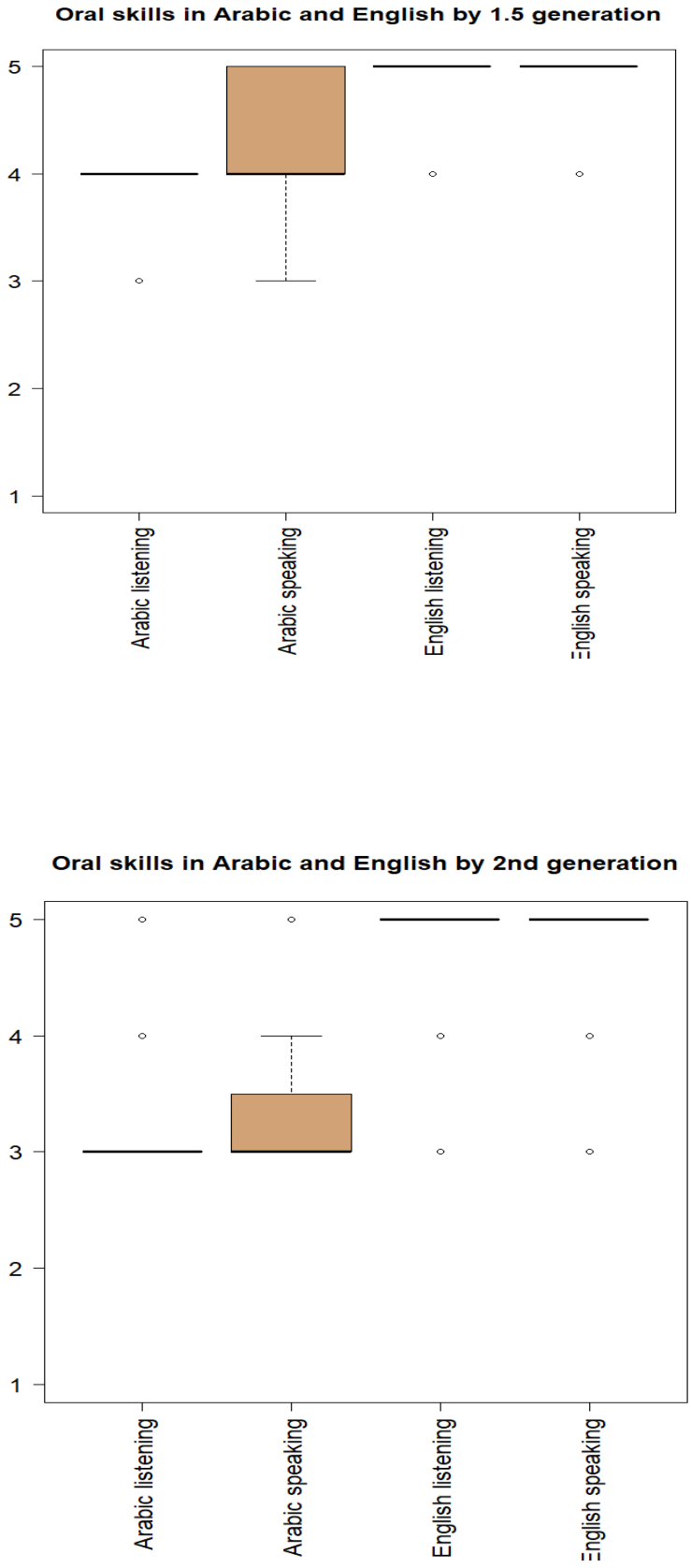
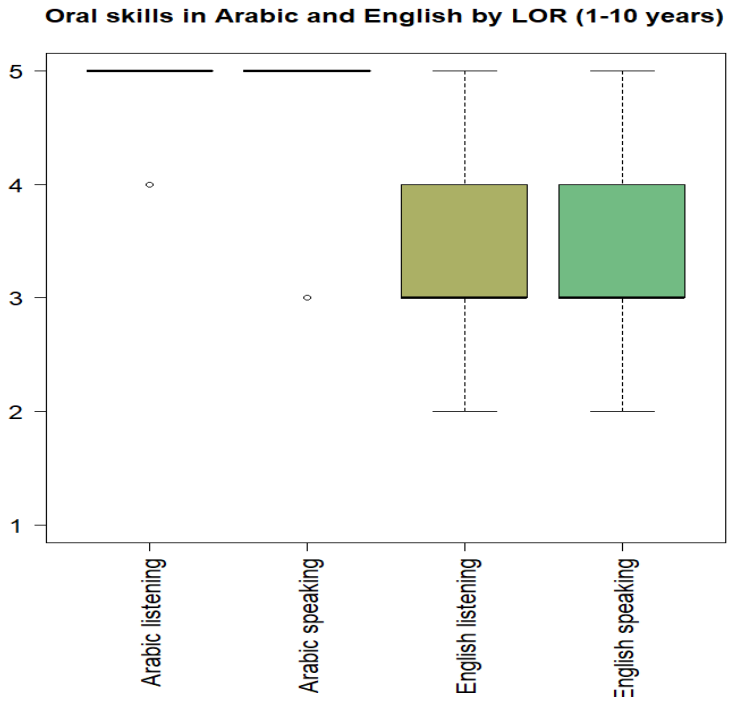


Figure 4. 2 Participants' oral skills by generation

Looking at the influence of the second independent variable LoR in NZ on the oral language proficiency in Arabic and English, it can be observed that there are only small differences in the Arabic oral skills between the three different groups (see Figure 4.3). Group 1 (1-10 years) reported that they are “excellent” in listening (Mean = 4.923) and speaking (Mean = 4.897), while group 2 (11-20 years) and group 3 (21-30 years) reported that they are “very good” in listening (Mean = 4.2, 4.1) and speaking (Mean = 4.38, 4.20), respectively. However, for English, it appears there are larger differences in oral skills between the three groups. Group 1 reported that they are “good” in their listening (Mean = 3.385) and speaking (Mean = 3.41). Group 2 reported they are “very good” in listening (Mean = 4.34) and speaking (4.32), and group 3 reported that they are “excellent” in listening (Mean = 4.8) and speaking (4.70).



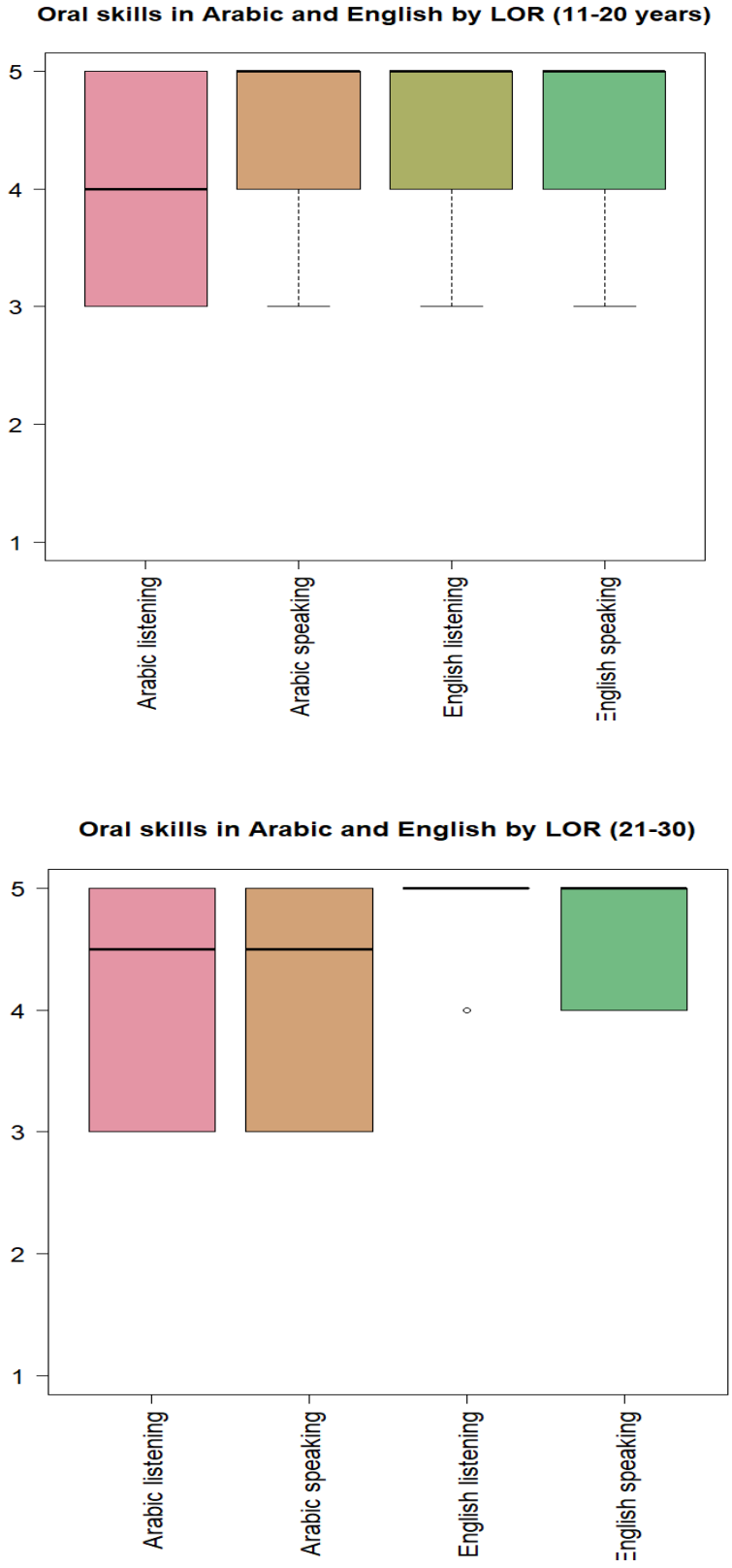


Figure 4. 3 Participants' oral skills by LoR in NZ

The Wilcoxon Test results indicate that there are significant differences between the generations of the participants and their proficiency in Arabic oral skills. The difference between the 1st

generation with 1.5 and the 2nd generations is statistically significant (p-value < 0.001) and the difference between the 2nd generation with 1.5 generation is statistically significant (p-value < 0.001). The same thing is applicable for the English oral skills where the results showed that there are statistically significant differences between the 1st generation and the 2nd generation participants (p-value < 0.001) and between the 1st generation and the 1.5 generation (p-value < 0.001). However, the test for the main effect of 1.5 and the 2nd generation (p-value < 0.83) indicates that there is not enough evidence to conclude that there is a significant generation effect on their oral proficiency.

The Wilcoxon Tests results also revealed that there are significant differences between the LoR in NZ and the proficiency of the participants in Arabic oral skills. The differences in Arabic oral proficiency between group 1 and 2 are statistically significant, as are the differences between group 1 and 3, but not between group 2 and 3. In checking whether there is any significant correlation between the LoR in NZ and the participants' proficiency in oral English, I found that there is a significant difference between group1 and group2 (p-value < 0.001) and group1 and group3 (p-value < 0.001). But, the test for the main effect of group2 and group3 (p-value < 0.14) reveals that there is not enough evidence to conclude that there is a significant LoR effect (see Figure 4.3).

The results suggest that the 1st generation participants are more proficient in Arabic oral skills than in English, whereas 1.5 and 2nd generation participants were more proficient in English oral skills than Arabic. Moreover, it appears that those who had been in NZ from 1-10 years were more proficient in their Arabic oral skills than English, while for those who had been in NZ from 11-20 years and 21-30 years, there appear to be only slight differences in their Arabic and English skills, but at the same time they appear more proficient in English than Arabic.

4.1.1.2 Literacy Skills in Arabic and English

Figure 4.4 shows that the majority of participants rated their ability in Arabic literacy skills as 'excellent', (median = 5.00) and in English as "very good", (median = 4.00). However, on average, the participants perceived their abilities in reading (Mean = 4.071) and writing (Mean = 3.687) Arabic as slightly lower than in reading (Mean= 4.333) and writing (Mean= 4.22) English.

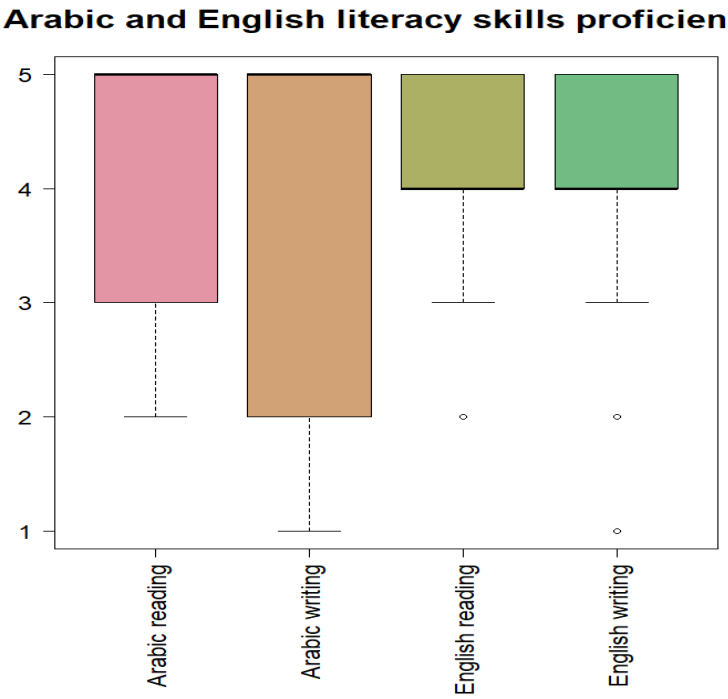
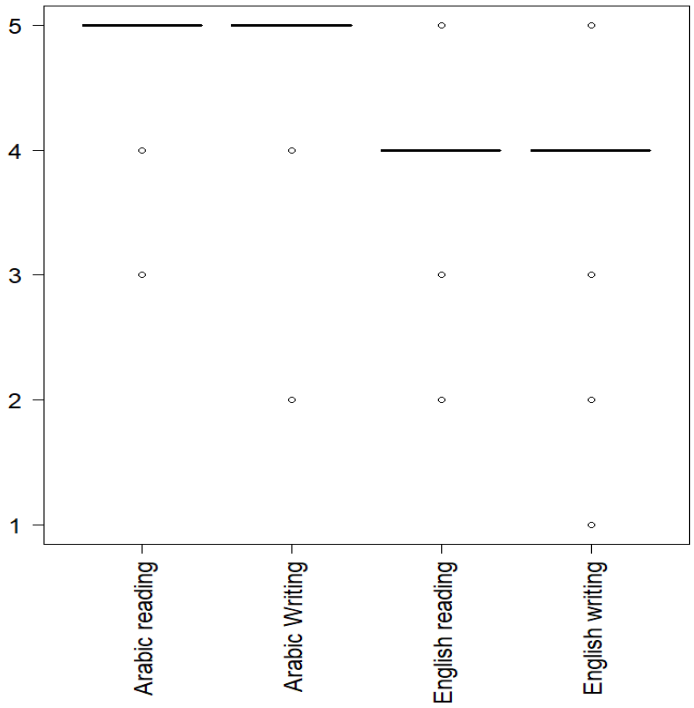


Figure 4. 4 Participant's literacy skills in Arabic and English

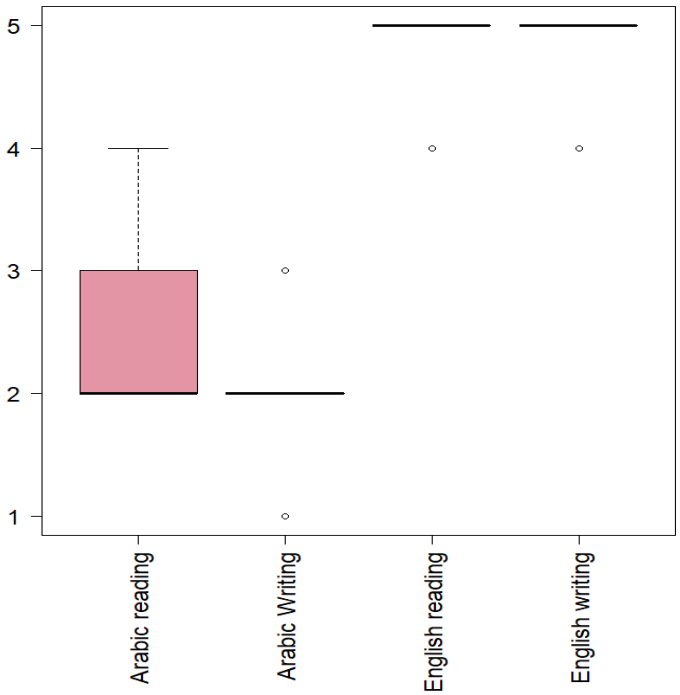
There are clear differences in Arabic literacy skills between the different generation groups. It appears that the 1st generation participants are more proficient in reading (Mean = 4.953) and in writing (Mean = 4.766) Arabic. 1.5 generation participants assessed themselves as "fair" in reading (Mean = 2.467) and in writing (Mean = 1.933) Arabic, while the 2nd generation participants seem to be also "fair" in reading (Mean = 2.45) but "poor" in writing (Mean = 1.55).

With regard to English literacy skills, the 1st generation participants reported themselves to be less proficient than the 1.5 and the 2nd generation participants. The 1.5 and 2nd generation participants assessed their literacy skills as "excellent" in reading (Mean = 4.9) and writing (Mean = 4.85), while the 1st generation participants evaluated themselves as "very good' in reading (Mean = 4.031) and in writing (Mean = 3.875).

literacy skills in Arabic and English by 1st generation



literacy skills in Arabic and English by 1.5 generation



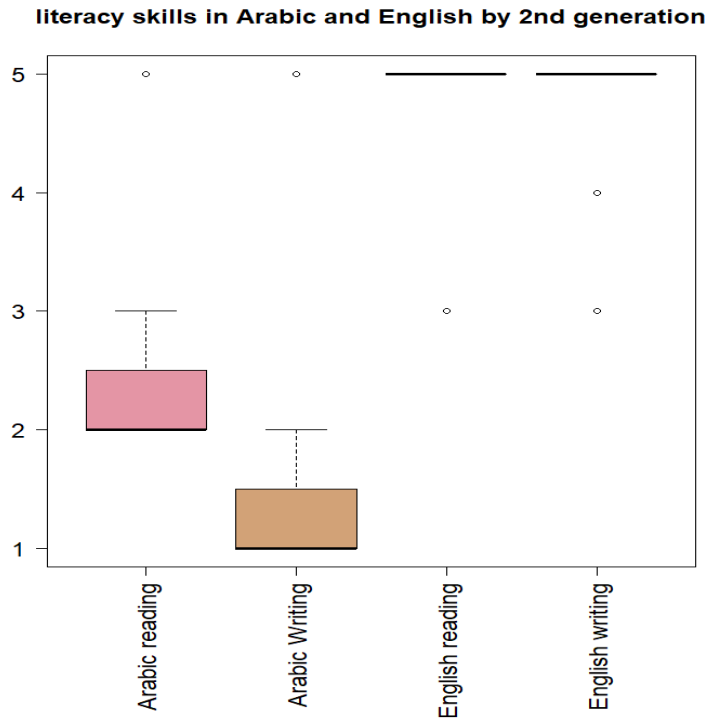
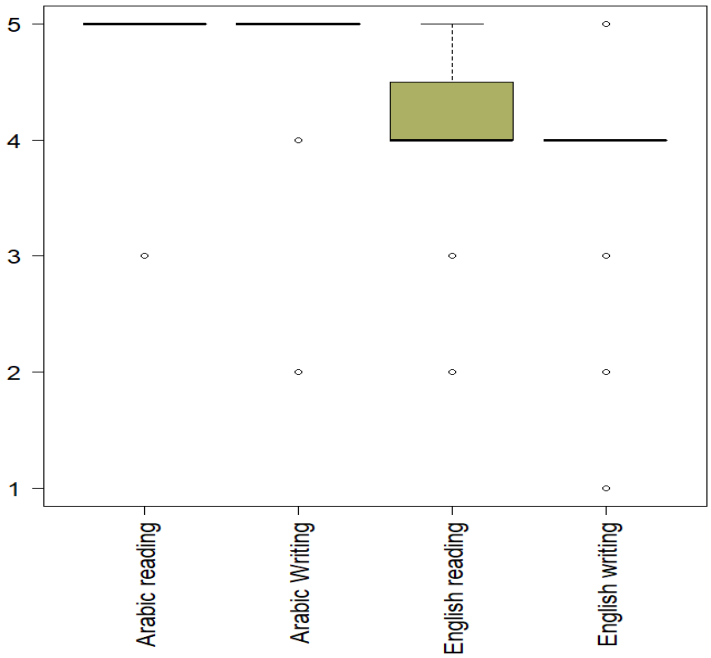


Figure 4. 5 Participants' literacy skills by generation

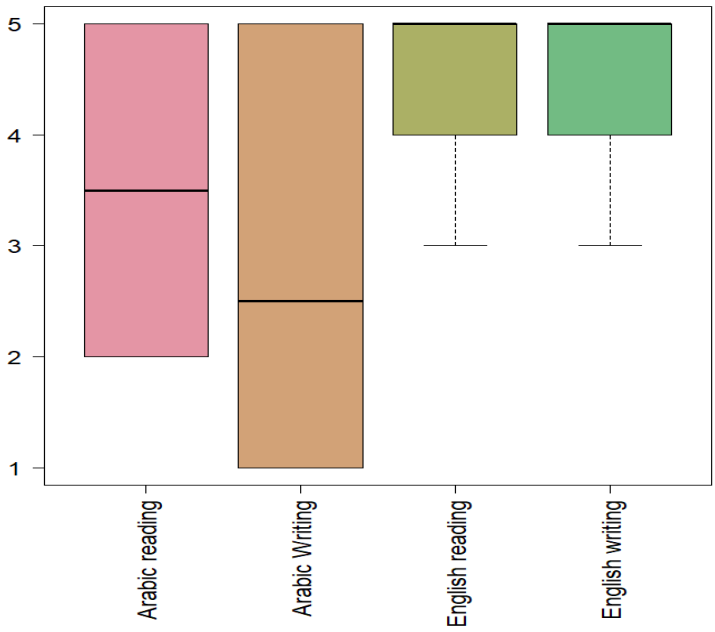
The second independent variable LoR also has an influence on the ability of the participants' literacy skills. There are some differences in the reported Arabic literacy proficiency among the three different LoR groups. Group 1 (1-10 years) reported that they were "excellent" in reading (Mean = 4.846) and in writing (Mean = 4.692) Arabic, while, group 2 (11-20 years) and group 3 (21-30 years) reported that they were "good" in reading (Mean = 3.56, 3.6) and "good" in writing (Mean = 3.02, 3.1).

However, for English, there are only small differences in the literacy skills between the three LoR groups. Group 1 reported that they are "very good" in their reading (Mean = 4.0) and writing (Mean = 3.74), while group 2 (11-20 years) and group 3 (21-30 years) reported that they are "excellent" in reading (Mean = 4.54, 4.6) and writing (Mean = 4.52, 4.6) respectively.

literacy skills in Arabic and English by LOR (1-10 years)



literacy skills in Arabic and English by LOR (11-20 years)



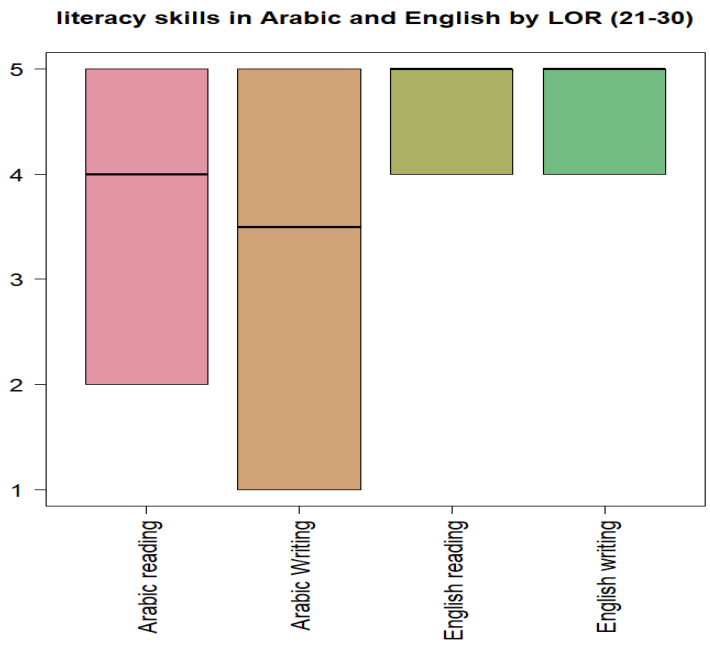


Figure 4. 6 Participants' literacy skills by generation

The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on the participants' self-assessments of their literacy skills in Arabic and English to detect any correlations between these variables and literacy levels (see Figure 4.5 and 4.6).

The test showed that there are significant correlations between the generation of the participants and their proficiency in Arabic literacy skills; for example the differences between the 1st and 1.5 generation and between the 1st and 2nd generation are both statistically significant, with (p-value < 0.001) and that the difference between the 2nd and 1.5 generation is also significant, with a p-value of (p-value < 0.001). I have applied the same test to see if there are significant correlations between the generation of the participants and their proficiency in English literacy. The Wilcoxon Tests results showed that there are statistically significant differences between the 1st generation and the 2nd generation participants (p-value < 0.001) and between the 1st generation and 1.5 generation (p-value < 0.001). However, the test of the main effect of 1.5 generation and 2nd generation yielded the (p-value < 0.78), which suggests that there is not enough evidence to conclude that there is a significant generation effect.

To sum up, we can see that there is a significant decrease in the proficiency of Arabic oral skills in 1.5 and 2nd generations, and significant increase in the English oral skills compared with 1st generation. 1st generation speakers are more proficient in Arabic literacy skills than 1.5 and 2nd

generations, but 1st generation speakers are less proficient in English literacy skills than 1.5 and 2nd generations.

The Wilcoxon Tests' results revealed that there is a significant correlation between the LoR in NZ and the proficiency of the participants in Arabic literacy skills; the difference between group 1 and 2 is significant (p-value < 0.001) and the difference between group 1 and group 3 is significant (p-value < 0.006)), while there are no significant differences between group 2 and group 3 (p-value < 0.8295) in their Arabic literacy proficiency (see Figure 6). This result suggests that the 1-10 LoR group is more proficient in the Arabic literacy skills than the 11-20 and 21-30 LoR groups. When we consider correlations between LoR in NZ and the participants' proficiency in literacy English, it appears that there is a significant difference between group1 and group2 (p-value < 0.001) and group 1 and group 3 (p-value < 0.001). However, the test for the main effect of group 2 and group3 yielded a p-value of 0.74, which suggests there is not enough evidence to conclude that there is a significant LoR effect. This result indicates that the 1-10 LoR group is less proficient in English literacy skills than the 11-20 and 21-30 LoR groups, while there was no significant differences between the last two groups (11-20 years and 21-30 years) in literacy language skills.

Based on the analysis above, it can be concluded that the participants are proficient in both Arabic and English oral skills. However, there was a sharp regression in the reported Arabic literacy skills particularly among the 1.5 and 2nd generation participants, and 2nd generation participants showed more regression in the writing skill than the 1.5 generation. Moreover, it appears that those who have lived in NZ between 1 to 10 years are still proficient in Arabic literacy skills compared to the other two groups (11-20 years and 21-30 years) who showed regression in their literacy skills. With regard to the English language, the three generations and the three LoR groups all reported that they were proficient in English literacy skills. The results suggest that there is a gradual shift towards English and at the same time, a gradual decrease in the ethnic language proficiency as we move towards the 1.5 and 2nd generations and towards the 2nd and the 3rd groups of LoR in NZ. The next section will discuss the patterns of language use in different domains (e.g., home, friendship and religion).

4.1.2 Language Use in Different Domains

This section focuses on the language the Arabic Jordanian participants reported they used when communicating with different people in different domains (e.g., home, the mosque and with friends). Questions on each domain consisted of four items. A five-point Likert scale was used to answer questions related to the language use part ranging from one to five and ordered as follows: 1- only Arabic, 2- mostly Arabic, 3- Arabic and English, 4- mostly English and 5- only English. Where language use patterns were found to correlate with certain variables (e.g. generation and LoR), they were investigated further.

Table 4.1 shows the mean scores of the Jordanians' language use in three different domains (home, friendship and religion), with a reference to their median score in each individual domain.

Language use in different domains	**Home**	**Friendship**	**Religion**
Mean	1.412	2.202	1.00
Median	1.000	2.000	1.00

Table 4. 1 Mean and median scores of Arabic vs. English use in the home, friendship and religion domains with different interlocutors (1 = only Arabic; 5 = only English)

Participants were asked to rate their frequency of Arabic vs. English use when speaking with different interlocutors in three different domains (e.g. home, friendship and religion). Table 4.1 shows the mean and median scores for the frequency of use of Arabic and English among Arabic Jordanians in Christchurch. It appears that the Arabic language is the dominant language used in the three domains, with only small differences. For example, home's mean = 1.412, friendship's mean = 2.202 and religion's mean = 1.00. The low means of 1.00 for religion and 1.412 for the home suggest that these are the most important domains which help Jordanian minority groups to maintain their heritage language. This result goes hand in hand with the previous literature (Al-Sahafi, 2010; Fishman, 1991; Holmes, 2001; Tawalbeh, 2017).

4.1.2.1 Language Use in the Home Domain

Participants were asked to rate their frequency of Arabic and English use when speaking with parents, spouse/partner, siblings and children. As shown in figure 4.7, Arabic is the dominant language in the home, and used frequently by the participants when communicating with family members including parents, spouses, siblings and children. The use of Arabic in homes seems to be especially dominant when talking with parents (mean = 1.412), spouse/partners (mean = 1.918) and siblings (mean = 2.131). When talking with their children, the participants reported a tendency to use both Arabic and English (mean = 2.232). English is rarely used by the participants when interacting with parents and spouses. However, the use of English seems to increase slightly when participants talk with their siblings and children.

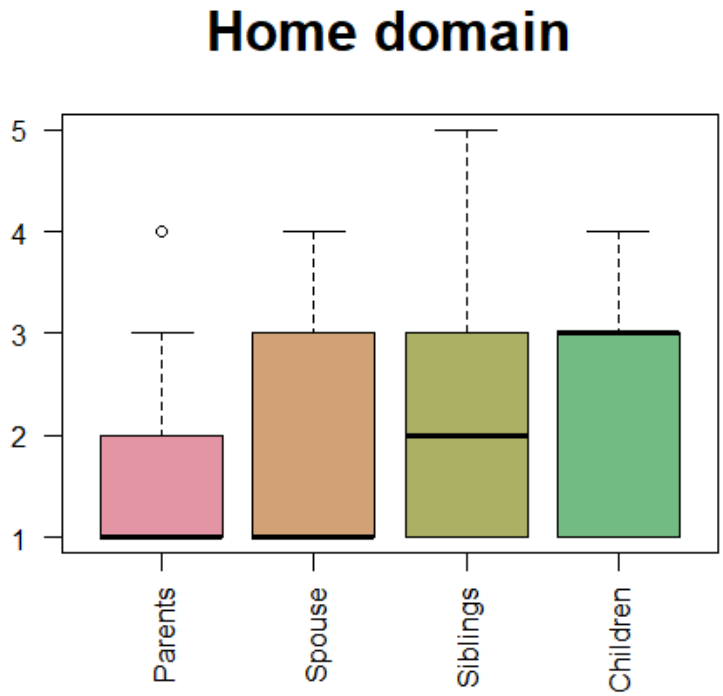
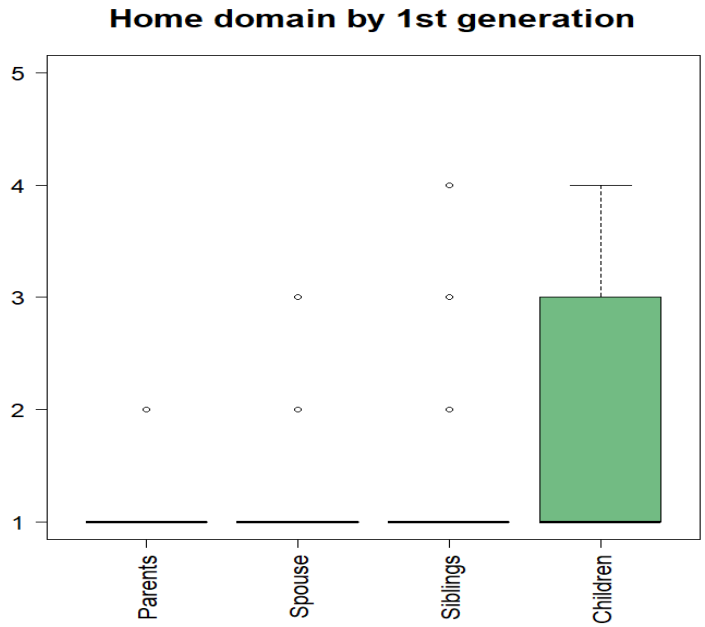
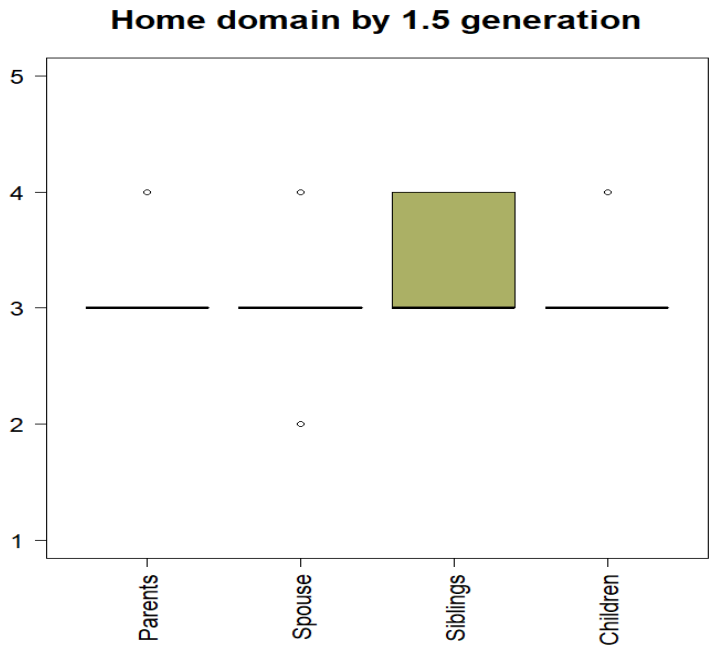


Figure 4. 7 Language use in home domain (1 = only Arabic; 5 = only English)

It appears in figure 4.8 below that the 1st generation participants used *only Arabic* (median = 1.000) when communicating with the family members. This was more often than the 1.5 generation

(median = 3.0) who reported using both *Arabic and English* with family members and with 2nd generation (median = 4.0) who used *mostly English* with their siblings, *Arabic and English* with children and spouse and *mostly Arabic* with parents. These results suggest that both the heritage language and the majority official language of the host country are used in the home domain, which might lead to gradual language shift in the home domain among both 1.5 and 2nd generations, but ethnic language maintenance among the 1st generation.





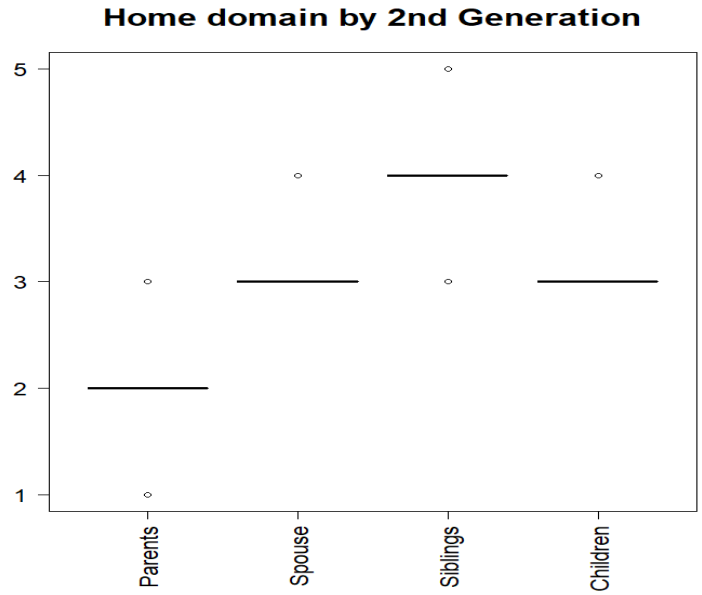


Figure 4. 8 Language use in home domain by generations (1 = only Arabic; 5 = only English)

The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on the participants' language use in their homes to detect any interaction between these variables (see figure 4.8).

The Wilcoxon Test results showed that there were statistical significant differences in the language use at home between the 1st and the 2nd generation participants (p-value < 0.003) and between the 1st and 1.5 generations (p-value < 0.001). However, there were no significant differences between 1.5 and 2nd generation participants (p-value <0.50).

The Wilcoxon Test results also showed a significant correlation between LoR in NZ and language use at home. There were significant differences between group1 (1-10 years LoR) and group 2 (11-20 years LoR) (p-value < 0.001), and between group 1 and group 3 (21-30 years LoR) (p-value < 0.001). The test for group2 and group 3 yielded a (p-value < 0.20), which indicates that there was not enough evidence to conclude that there was a significant effect.

These results mean that home is an important domain that helps Jordanian minority groups to maintain their Arabic language, particularly among 1st generation and 1-10 years LoR speakers. However, 1.5, 2nd generations, 11-20 years and 21-30 years LoR reported using the dominant language (English) in addition to their ethnic language with family members. Parents seem to greatly influence maintenance of ethnic language. 2nd generation participants reported using mostly English with their siblings and mostly Arabic with their parents. As I have mentioned before, 1.5 generation participants represent a transitional point on the age scale: they are exposed to both the younger people (2nd generation), who are more like New Zealanders, as well as the older (1st generation), who are more like Arabs. Therefore, the 1.5 participants used Arabic and English all the time with all members of the family, and this is expected to be the same in other domains. This use of both languages is an evidence for bilingualism and this bilingualism might lead to an increase in the use of the dominant language and finally language shift in the home domain in the future.

4.1.2.2 Language Use in the Friendship Domain

The participants reported the languages they use when speaking to their friends in New Zealand/Christchurch. Figure 4.9 shows the frequency of use of Arabic and English when speaking with Arabic friends, when Arabic friends speak with them, in the presence of non-Arab friends in the conversation, and when sending electronic messages to Arabic friends in New Zealand.

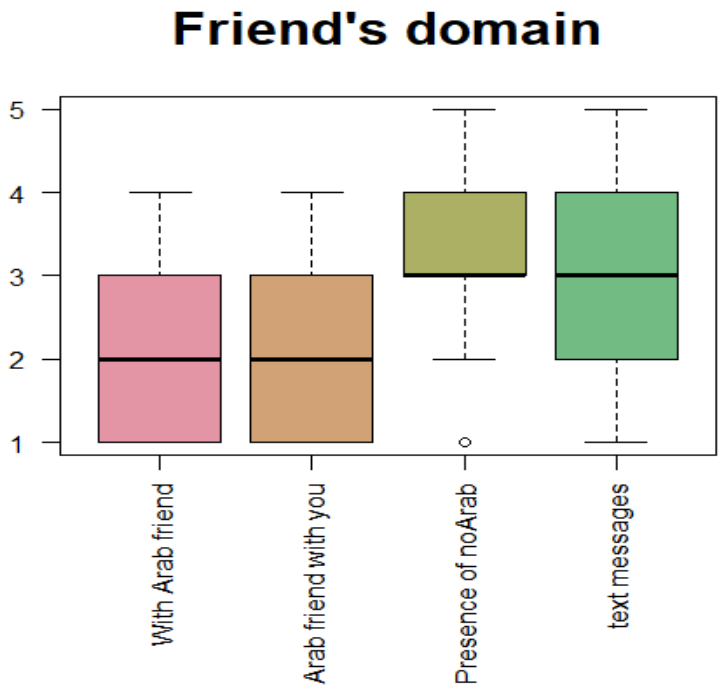
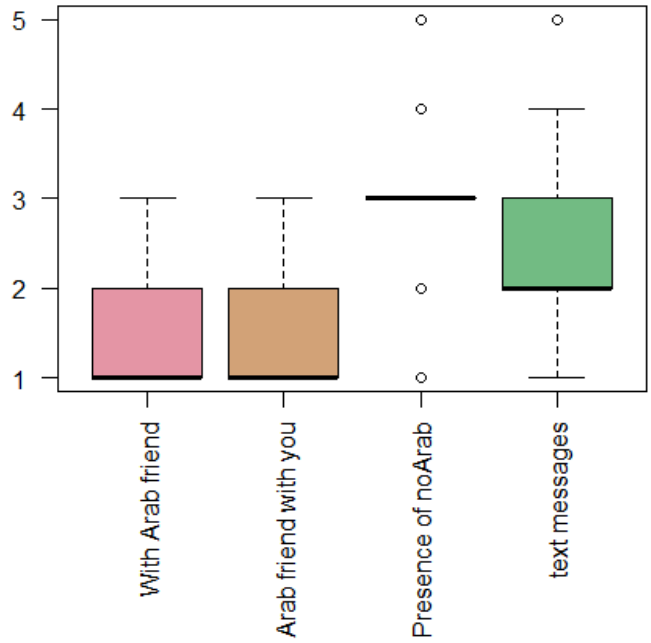


Figure 4. 9 Language use in the domain of friendship (1 = only Arabic; 5 = only English)

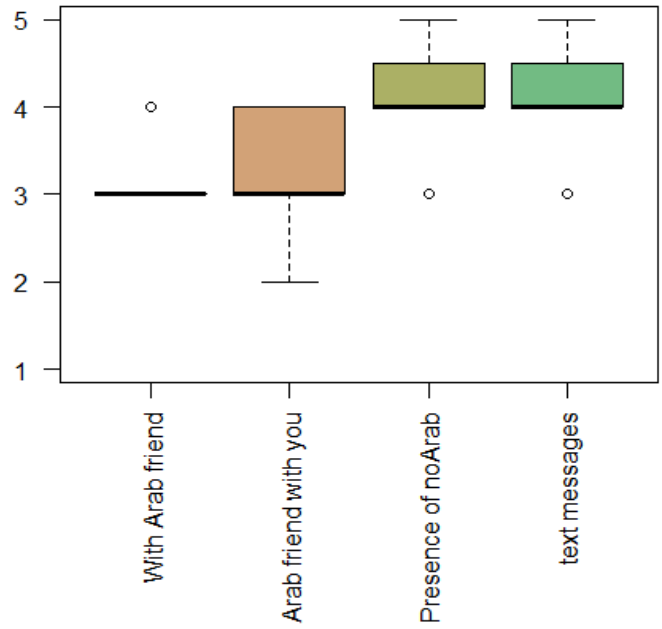
Figure 4.9 shows that *mostly Arabic* was used between Arabic friends (mean = 2.202). While, *Arabic and English* were used in the presence of non-Arabs in conversation (mean = 3.576) and when writing electronic messages to Arabic friends in New Zealand (mean = 3.121).

Among the Jordanian Arab generations (see Figure 4.10), the 1st generation used Arabic most frequently (mean = 1.516) when communicating with Arab friends. This was more often than the 1.5 generation who reported using both English and Arabic (mean = 3.133). English seems be more frequently used by the 2nd generation (mean = 3.7) than the 1st and 1.5 generations when talking to Arab friends. Both 1.5 and 2nd generations reported using *mostly English* and *only English* in the presence of non-Arabs and in writing text messages. Even the 1st generation speakers reported using English and Arabic in the presence of non-Arabs in the conversation, but still they use more Arabic than 1.5 and 2nd generations, and when writing text messages they use mostly Arabic.

Friend's domain by 1st generation



Friend's domain by 1.5 generation



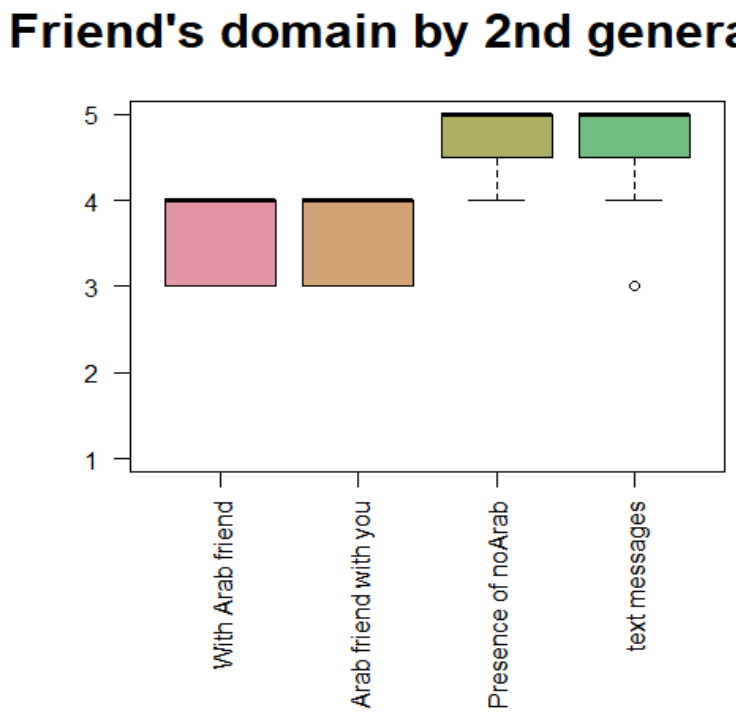


Figure 4. 10 Language use in the domain of friendship by generations (1 = only Arabic; 5 = only English)

The Wilcoxon Test was used to measure the influence of the independent variables generation and LoR on participants' language use among their Arabic Jordanian friends, to detect any interaction between these variables (see Figure 4.10). The Wilcoxon Test results show a statistically significant correlation between generation and language use in the domain of friendship. There are statistically significant differences between 1st and 2nd generation participants (p-value< 0.001), between 1st and 1.5 generations (p-value < 0.001), and between 1.5 and 2nd generation participants (p-value < 0.001). These results indicate that 1.5 and 2nd generations had the tendency to use more English than the 1st generation in the friendship domain, and it is interesting that there is also a significant difference between the 1.5 and 2nd generation for language use in this domain (unlike in the home domain). Moreover, the Wilcoxon Tests' results showed that there is a significant correlation between the LoR in NZ and language use in the domain of friendship: the difference between group 1 and group 2 is statistically significant with a (p-value < 0.03), as is the difference between group 1 and group 3 (p-value < 0.001). This indicates that Arabic Jordanians who have lived in NZ for 11-20 and 21-30 years have a tendency to use more English in the friendship domain than Arabic Jordanians who have lived in NZ less than 11 years. The test for group 2 and group 3 yielded a (p-value < 0.52), so there is not enough evidence to conclude that there was a significant effect.

These results suggest that the friendship domain does not play an important role in helping Jordanian minority groups to maintain their Arabic language, except among 1st generation and (1-10 years) LoR speakers, who tend to use Arabic most of the time. 1.5, 2nd generations, 11-20 years and 21-30 years LoR reported a tendency to use English. 1.5 generation participants showed the use of both *Arabic and English* in some contexts where the 2nd generation participants favoured English. This frequent use of the dominant language will accelerate language shift in the friendship domain in the future.

4.1.2.3 Language Use in the Religious Domain

The last domain investigated was the religious domain and its relation to language maintenance and language shift. Results of language use in the domain of religion (see Figure 4.11) show that *only Arabic* was used by Jordanians for prayer (Mean = 1). Participants reported that they were also using *mostly Arabic* (Mean = 2.091) with Arabic people in the mosque. However, *Arabic and English* was the most frequent answer when they were asked about their perception of the language used by the Imam in the mosque (Mean = 3.01) and the language used in the Fridays Sermon (Mean = 3.394). We can conclude that the participants hear both Arabic and English in the religious domain, whereas the language they use/speak in this domain is predominantly Arabic.

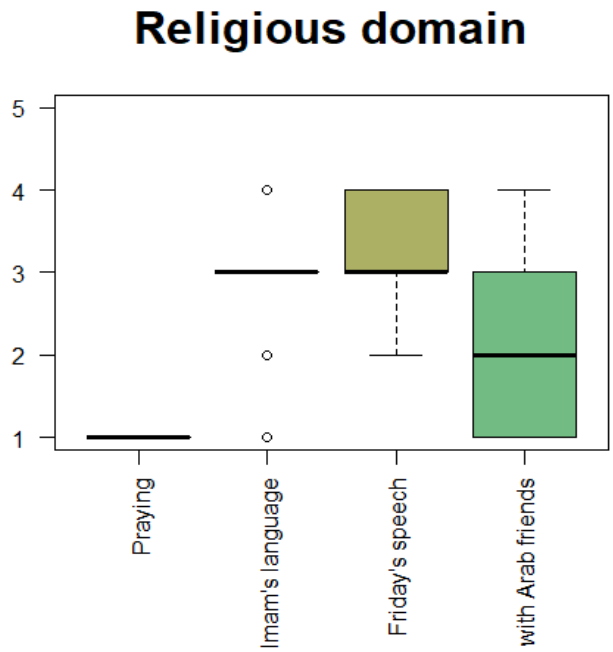
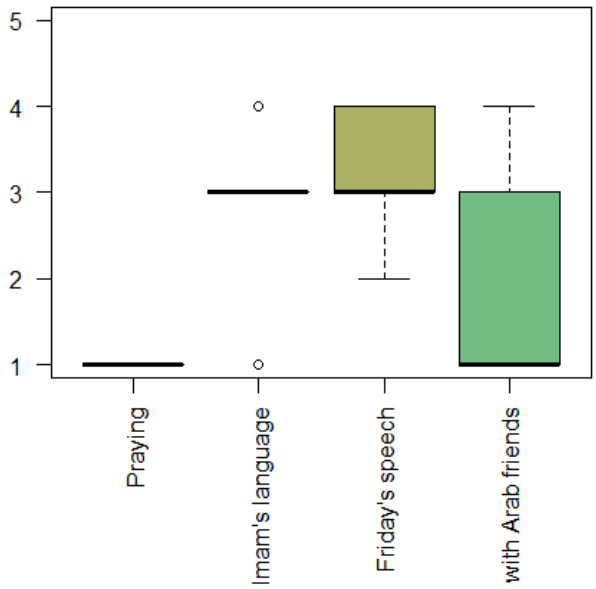


Figure 4. 11 Language use in the religious domain (1 = only Arabic; 5 = only English)

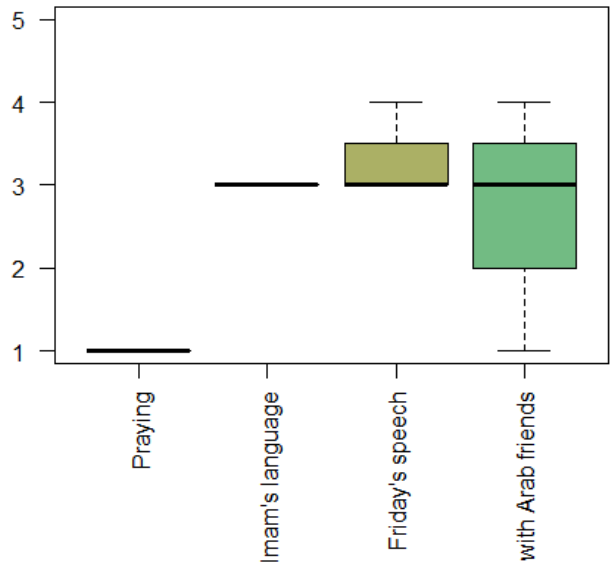
Figure 4.12 shows that most of the 1st generation participants reported using *only Arabic* (mean = 1.703) when communicating with Arab people in the mosque, while the 1.5 and 2nd generations most frequently reported using *English and Arabic* (means = 2.733 and 2.85, respectively).

The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on participants' language use in the religious domain with Arabic Jordanian people to detect any correlation between these variables (see Figure 4.12). The Wilcoxon Test results yielded statistically significant differences between 1st and 2nd generations (p-value < 0.001) and between 1st and 1.5 generation (p-value < 0.001), but there was no significant correlation between 2nd and 1.5 generations. These results indicate that 1.5 and 2nd generations' participants have a tendency to use more English than 1st generation. However, the test for LoR in New Zealand and language use in the religious domains showed not enough evidence to conclude that there is a significant effect.

Religious domain by 1st Generation



Religious domain by 1.5 Generation



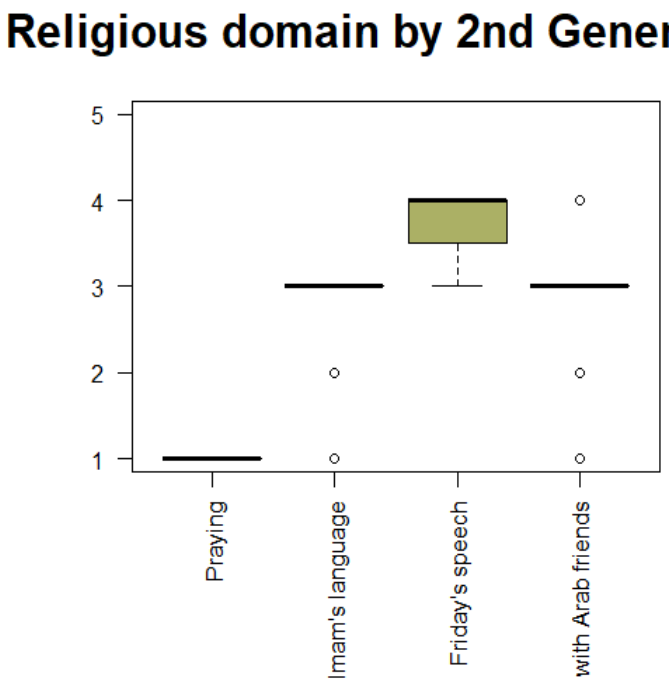


Figure 4. 12 Language use in religious domain by generations (1 = only Arabic; 5 = only English)

To conclude, all the available evidence suggests that the Jordanian community in Christchurch has a tendency to use both Arabic and English in all domains (home, friendship, and religion) with significant variation between generations and LoR. The friendship domain was found to be the least helpful domain for the maintenance of the Arabic language, particularly among 1.5 and 2nd generations, and 11-20 and 21-30 years LoR. The results indicate that 1.5 and 2nd generations and speakers with 11-20 and 21-30 years LoR have a tendency to use more English in the friendship domain than 1st generation and 1-10 years LoR. The 1st generation participants reported a predominant use of Arabic, especially in the home and religion domains. LoR was also found to influence language use in the home domain: those who have been in the country 11-20 and 21-30 years showed more use of *both Arabic and English* compared to those who have been in the country for 1-10 years, who showed more use of Arabic language. Interestingly, the perception that English is used in the Friday ceremony seems to be strongest amongst 2nd generation participants. The results also show differences between the three generations in the language used with Arab friends in the mosque. *Only Arabic* was used with friends in the mosque by the 1st generation, *Arabic and English* were used by 1.5 generation

and *mostly English* was used by the 2nd generation. The next section will focus on the analysis of language attitudes towards both Arabic and English.

4.1.3 Language Attitudes

This section investigates the respondents' attitudes towards Arabic and English. The attitudinal information for 99 participants was collected by a written questionnaire using a Likert scale (see appendix 1). In the questionnaire, attitudes were measured on a five-point scale, where *1 = 'strongly agree', 2 = 'agree', 3 = 'not sure', 4 = 'disagree' and 5 = 'strongly disagree'*. Afterwards, I analysed the mean scores and median of responses for each questionnaire item. In order to determine whether *generation* and *LoR* in New Zealand were significant predictors of Jordanians' attitudes towards Arabic and English, a Wilcoxon test was conducted with *generations* and *LoR* in New Zealand as independent variables and the *attitudes sub-sections* as dependent variables. All significant correlations yielded by the test are described and analysed in the next section. Finally, Principal Component Analysis (PCA) was used to group the questions into two factors: the first factor (PC1) includes 13 items related to Arabic language and culture, while the second factor (PC2) and includes 7 items related to English language and NZ culture. As discussed in more detail in section 3.2.7.1 above, the items in each factor were grouped into different themes, which led to the exclusion of four items that didn't fit into the themes and reduced the number of questions included in the analysis from 24 to the 20 items mentioned above.

4.1.3.1 Attitudes towards Arabic Language PC1

Figure 4.13 shows the Jordanians' attitudes toward their ethnic language and includes all PC1 items. A clear majority of participants expressed positive attitudes towards their ethnic Arabic language (mean = 1.232).

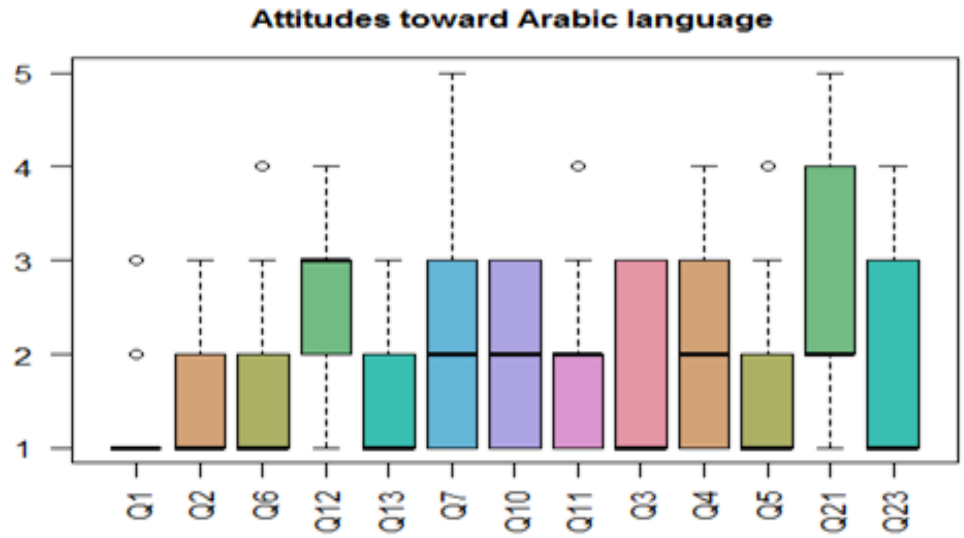


Figure 4. 13 Language attitudes toward Arabic PC1 (1 = most positive; 5 = least positive)

4.1.3.1.1 Attitudes toward the importance of learning, using and maintaining ethnic language

Items 1, 6 and 13 in Figure 4.14 evaluate the participants' attitudes towards the importance of learning their ethnic language. The answers showed that they *strongly agreed*, as indicated in the three items by their mean score of 1.232 and their median score of 1. 75.36% of the respondents answered positively (strongly agree or agree) when asked about the importance of learning their heritage language. Item number 2 evaluates the participants' attitudes toward Arabic as the language to be maintained for their whole life. The answers showed that they *strongly agreed* in this question too, as indicated by their mean of 1.545 and their median score of 1. 69.1% of the respondents answered positively when asked about their attitudes toward maintaining Arabic for the whole life. Item number 12 investigated the participants' attitudes towards improving their Arabic language in order to succeed in their professional life. The most frequent answer suggested they were *not sure* about this item, as indicated by their mean score 2.707 and their median score 3.00. 45.86% of the respondents answered positively towards this item.

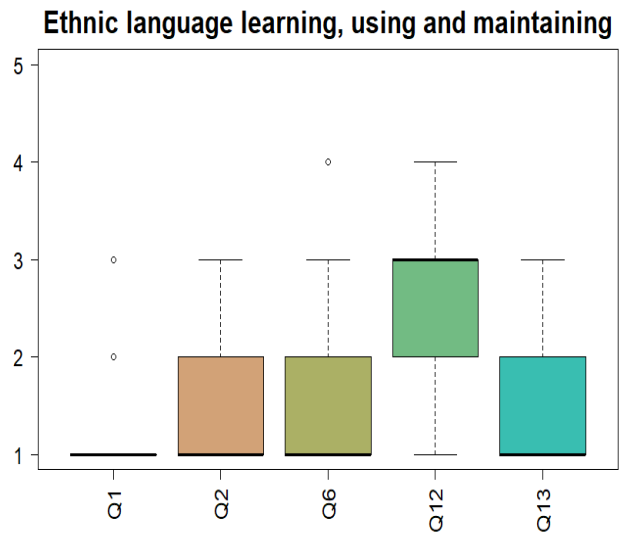


Figure 4. 14 Attitudes toward ethnic language learning, using and maintaining (1 = strongly agree; 5 = strongly disagree)

Figure 4.15 below shows the mean across the five items and that the 1st generation participants *strongly agreed* mean = 1.031) with the importance of learning, using and maintaining Arabic language. 2nd generation participants mean = 2.05, on the other hand, *disagreed* with item number 12 which aimed to evaluate their feelings towards the importance of improving Arabic language skills in order to succeed in the professional life, and they were *not sure* about item number 2 which investigated their attitudes towards the importance of maintaining Arabic for their whole life means = 3.4 and 2.75, respectively).

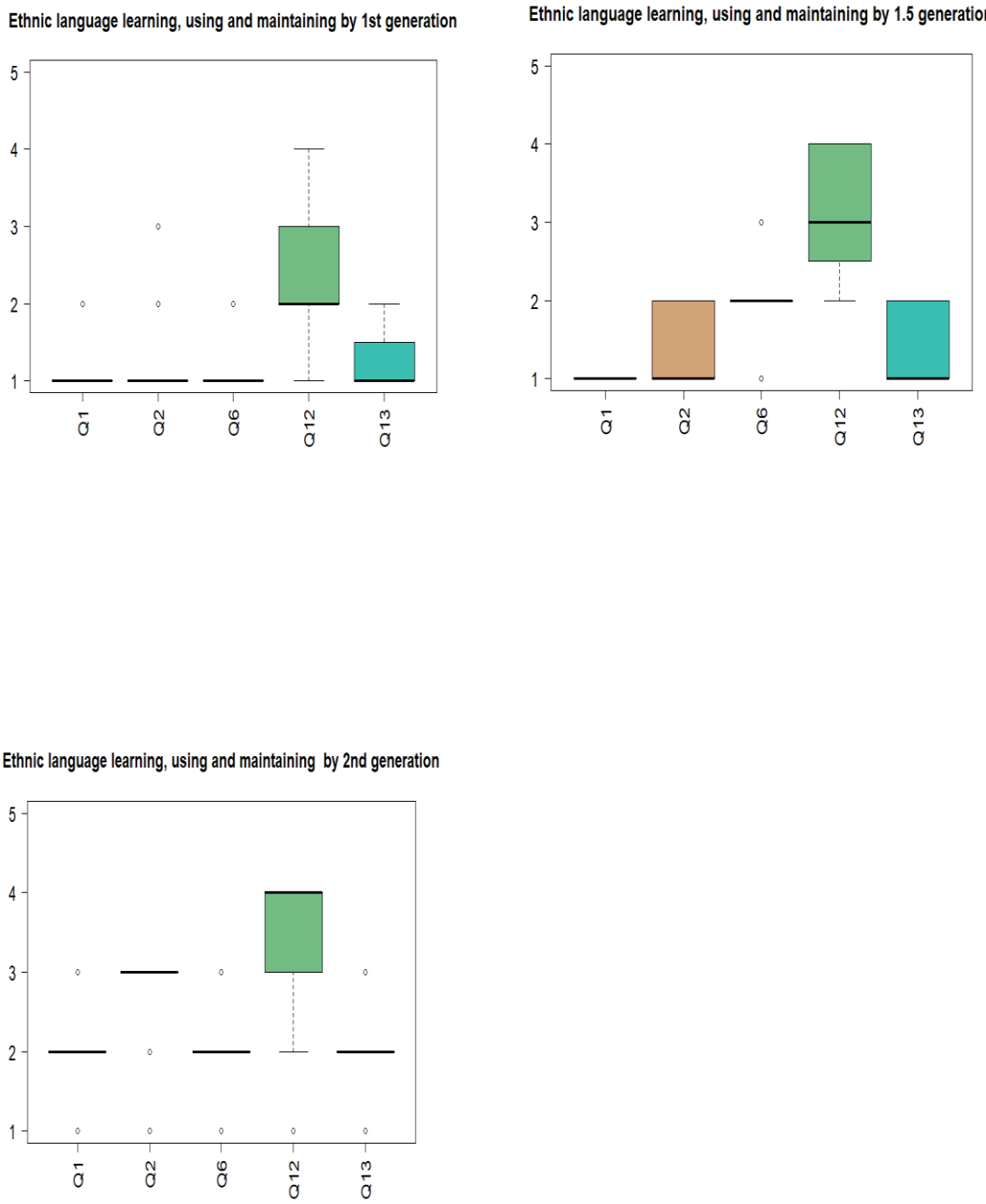


Figure 4. 15 Attitudes towards ethnic language learning, using and maintaining by generation (1= strongly agree; 5 = strongly disagree)

The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on the participants' attitudes to detect any interaction between these variables (see figure 4.15). The Wilcoxon Test results show statistically significant differences between 1st and

2nd generation participants (p-value < 0.001), and between 1st and 1.5 generations (p-value < 0.001), suggesting slight movement away from ethnic language learning, using and maintaining among 1.5 and 2nd generations. The test for LoR in New Zealand and attitudes towards learning, using and maintaining Arabic showed a significant difference between 1-10 years and 11-20 years LoR (p-value < 0.001), see Figure 4.16, but there was no significant difference between 1-10 years and 21-30 years LoR, and also no significant difference between 11-20 years and 21-30 years LoR.

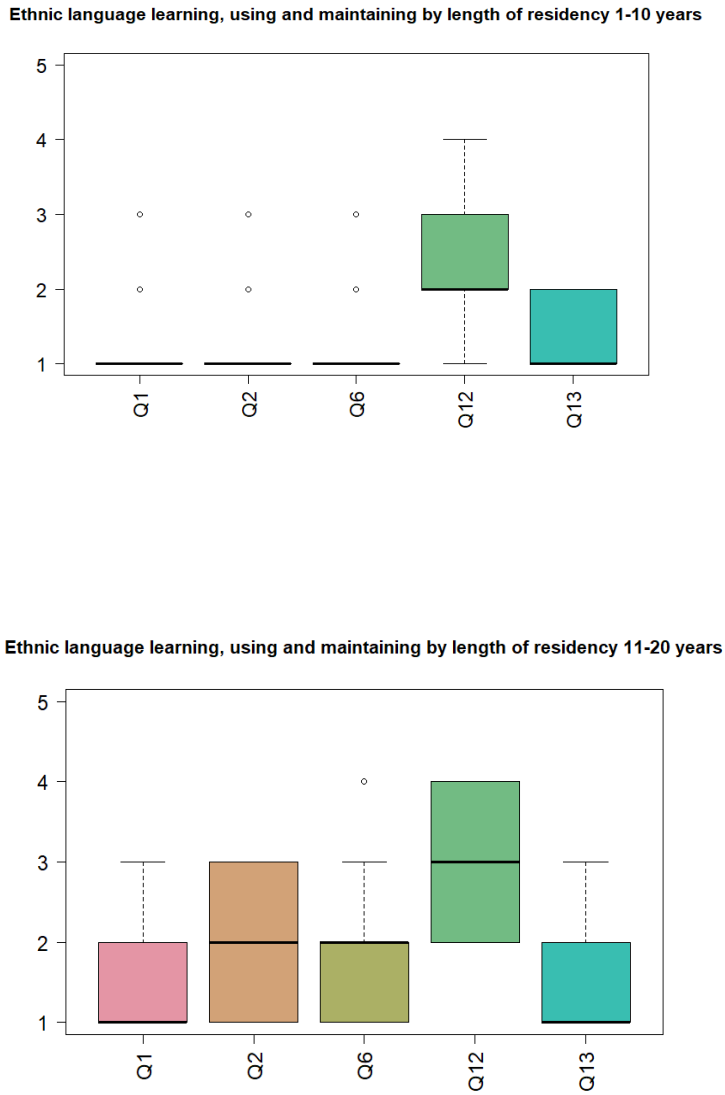


Figure 4.16 Attitudes toward ethnic language learning, using and maintaining by LoR (1 = strongly agree; 5 = strongly disagree)

4.1.3.1.2 Attitudes toward Arabic cultural maintenance and family cohesion

Items 7, 10 and 11 evaluate the participants' attitudes towards Arabic cultural maintenance and family cohesion. The responses showed that the participants *agreed* (see Figure 4.17) in this area, as indicated by their mean score of 2.101 and their Median score of 2.000 across the three items. 57.98% of the respondents answered positively when asked about Arabic cultural maintenance and family cohesion (they chose either *strongly agree* or *agree)*. Item (7) evaluates the participants' attitudes toward the importance of getting married to an Arabic person to maintain Arabic culture. The answers showed that they *agreed* with this point, as indicated by their mean score of 2.101 and their Median score of 2.000. Item (10) investigates the Jordanians' attitudes toward the importance of maintaining Arabic culture in New Zealand (dress, food, traditions and behaviours) and they also reported *agreement* in this area as indicated by their mean score of 1.97. The last item (11) asked for the participants' attitudes toward the importance of maintaining family cohesion and their answers showed that they *agreed* with this point as indicated by their mean score score of 1.768 and their median score of 2.00.

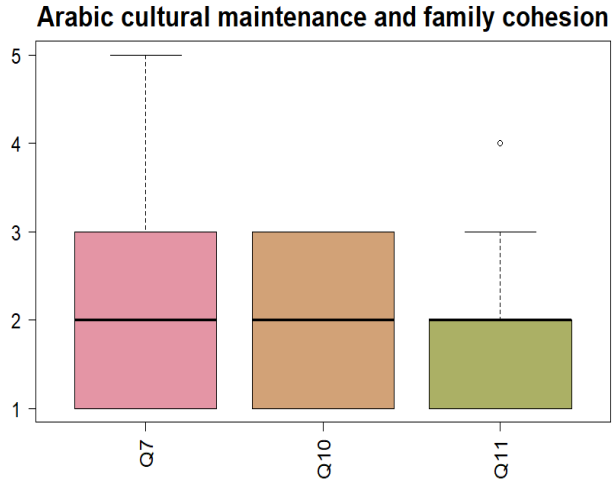


Figure 4.17 Attitudes toward Arabic cultural maintenance and family cohesion (1 = strongly agree; 5 = strongly disagree)

The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on the participants' attitudes to detect any interaction between these variables (see figure 4.18). The Wilcoxon Test results showed statistically significant differences between 1st and 2nd generation participants (p-value < 0.001), 2nd and 1.5 generations (p-value < 0.001); though, no

significant differences were found between 1st and 1.5 generations (p-value < 0.872). The test for the LoR in New Zealand and attitudes towards Arabic cultural maintenance and family cohesion showed no significant correlations at all.

To sum up, the results show that although 1st and 1.5 generations considered it important to get married to an Arab person, the 2nd generation participants were not sure. These results suggest that 2nd generation speakers are moving away from the Arabic culture and family cohesion, while the 1st and 1.5 generations still showed positive attitudes towards maintain both of them.

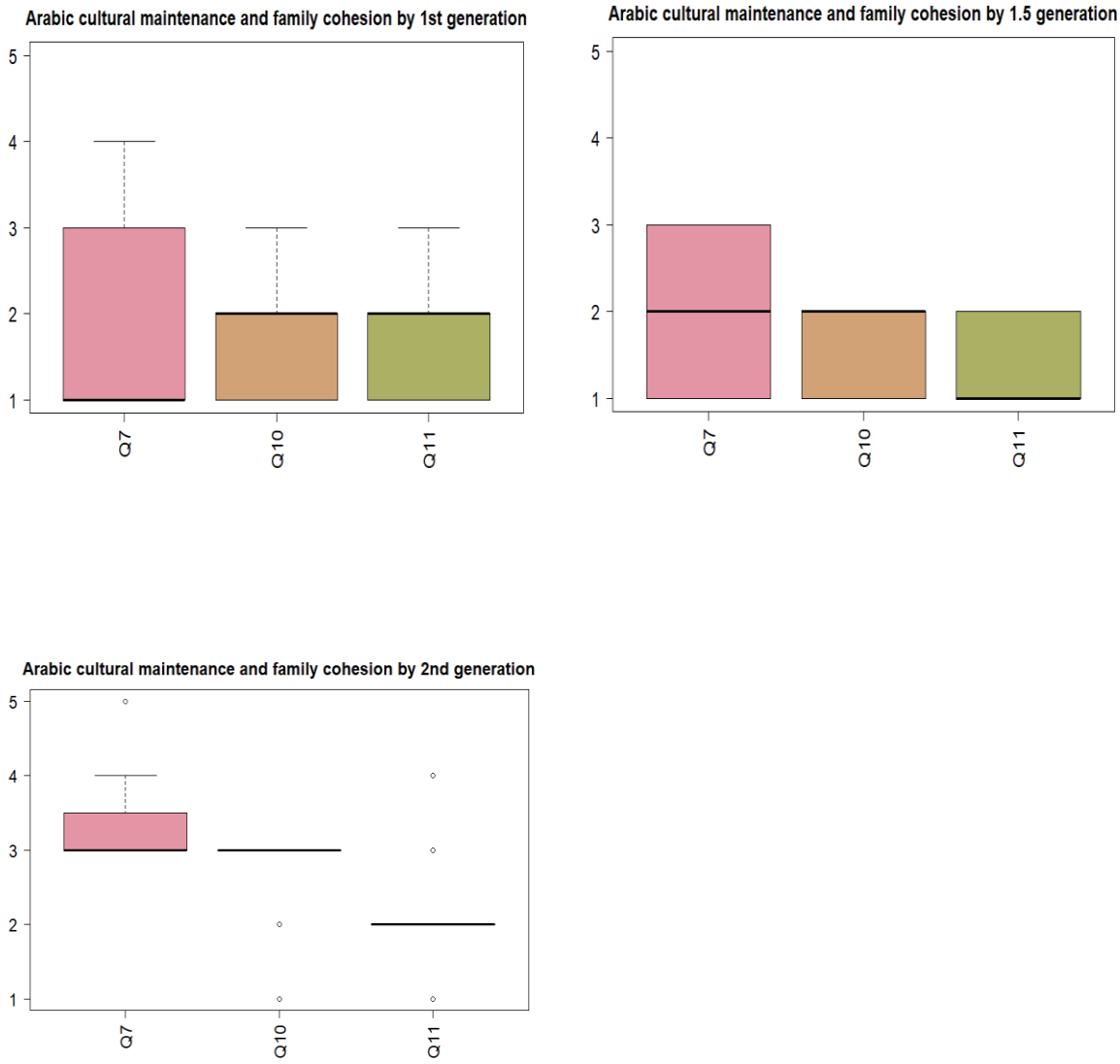


Figure 4. 18 Attitudes towards Arabic cultural maintenance and family cohesion by generation (1 = strongly agree; 5 = strongly disagree)

4.1.3.1.3 Attitudes toward ethnic identity maintenance

Items 3, 4 & 5 investigated the participants' feelings of whether they still feel that they are Arabs although they live in New Zealand, and about the relationship between language and identity. As can be seen from Figure 4.19, a clear majority (median = 1.000 and 2.00, respectively) agreed with the importance of speaking Arabic to have an Arabic and an Islamic identity (items 3 & 4), with a high mean scores of 1.727 and 1.97, respectively. Agreement with these two items suggests that the ethnic language is closely intertwined with Arabic and Islamic identities. The responses to item 5 suggest that the majority of Jordanians strongly agree (mean = 1.51) that they still feel that they are Arabs although they live in New Zealand.

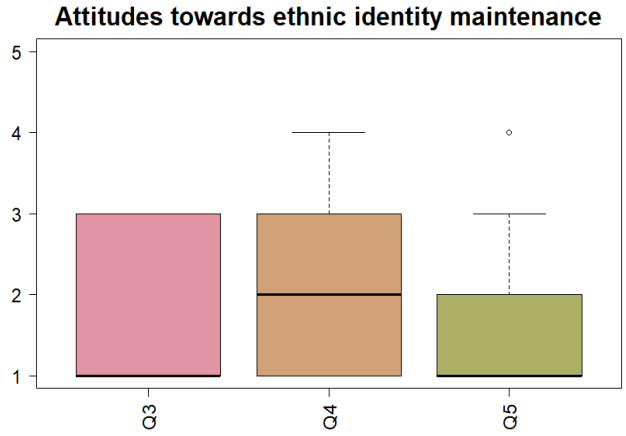


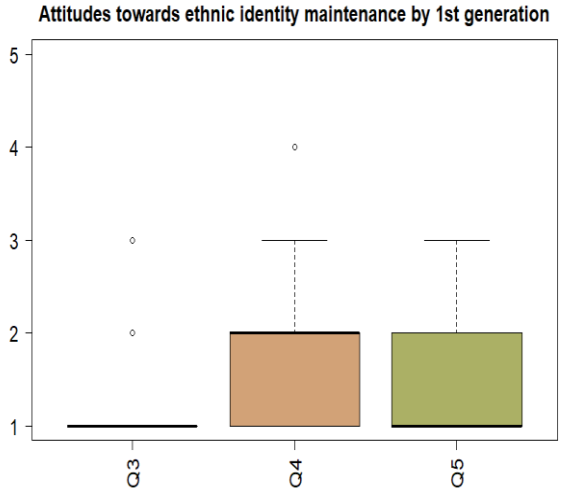
Figure 4. 19 Attitudes towards ethnic identity maintenance (1 = strongly agree; 5 = strongly disagree)

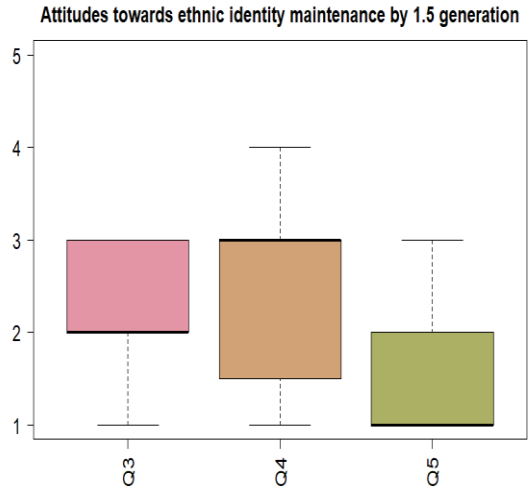
The Wilcoxon Test was used to measure the influence of the independent variables (generation and LoR) on participants' attitudes toward Arabic language and identity, to detect any correlation between these variables (see Figure 4.20). The Wilcoxon Test results yielded statistically significant differences between the 1st and 2nd generation participants (p-value < 0.001), 1st and 1.5 generations (p-value < 0.001), but no significant differences were detected between 2nd and 1.5 generations (p-value < 0.06). The test for LoR in New Zealand and the attitudes towards the Arabic language and identity showed no significant correlations at all.

The 1st generation participants seemed to perceive a stronger link between Arabic language and both Arabic and Islamic identities than the 1.5 and 2nd generations. The 1st generation

participants *strongly agreed* (mean = 1.359) with the connection between the Arabic language and identity, while the 2nd generation were generally *not sure* (mean = 2.5) about this connection. The 1.5 generation showed agreement (mean = 2.267) with the connection between Arabic language and Arabic identity, but they were less sure about the connection between Arabic language and Islamic identity.

To sum up, the results confirm the importance that is accorded to knowing Arabic language in order to have an Arabic and Islamic identity, although 1.5 and 2nd generations were less sure than the 1st generation about the importance of knowing Arabic language to have an Islamic identity. This result shows that 1st and 1.5 generations Arabs more strongly agree that there is a link between language and Arabic identity than their 2nd generation counterparts.





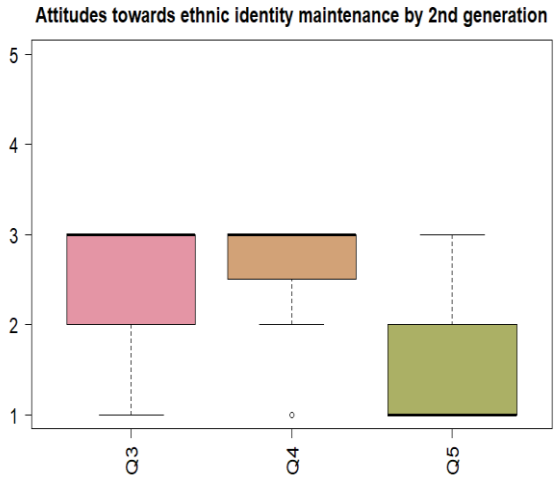


Figure 4. 20 Attitudes toward ethnic identity maintenance by generation (1 = strongly agree; 5 = strongly disagree)

4.1.3.1.4 Attitudes towards Arabic accent and automaticity of using it with Arabs

Items 21 and 23 show the Jordanians' attitudes towards having an Arabic accent when speaking English and towards automatically using Arabic when in the company of Arabs (see Figure 4.21). The mean scores for these two items pointed at 3.061 and 1.818, respectively, indicate *not-sure* attitudes towards item 21 (Arabic accent in English) and *agreement* attitudes towards item 23 (automatically using Arabic with Arabs). The median answers were 2.00 and 1.00, respectively, which indicates that the Jordanian participants were generally in agreement with these two items.

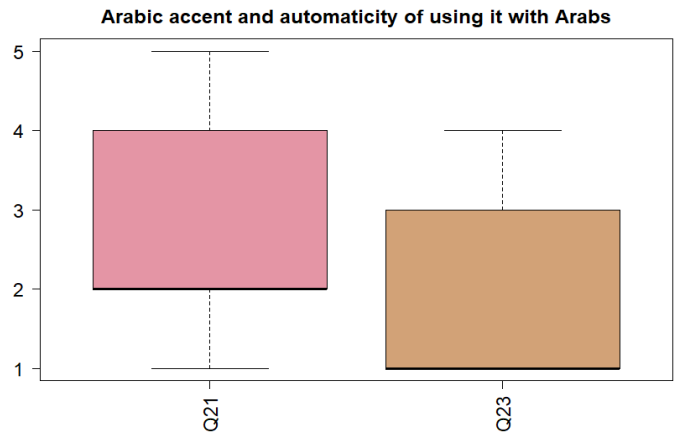


Figure 4. 21 Attitudes toward Arabic accent and automaticity of using Arabic with Arabs (1 = strongly agree; 5 = strongly disagree)

A Wilcoxon Test was conducted to assess whether any of the independent variables (generation and LoR) significantly influenced the Jordanians' feelings towards having an Arabic accent when speaking English and the automaticity of using Arabic when in company of Arabs (see Figure 4.22). The Wilcoxon Tests results showed statistically significant differences between the 1st and 2nd generation participants (p-value < 0.001), 1st and 1.5 generations (p-value < 0.001), and also between the 2nd and 1.5 generations (p-value < 0.001).

To sum up, these findings indicate that 1st generation speakers gave value to having an Arabic accent in their English and this might be related to their perception that they couldn't be native-NZE-like because of their late time of arrival to NZ, or it could be that the NZE accent didn't mean the same for them as for the 1.5 and 2nd generations. 1.5 generation reported *disagreement* with item 21 (Arabic accent in English) and *not sure* with item 23 (automatically using Arabic with Arabs), while 2nd generation speakers showed *disagreement* with both items. This means that 1.5 and 2nd generation speakers value sounding more like a native speaker in both languages. Furthermore, 2nd generation speakers couldn't switch to Arabic automatically like 1st generation speakers, while 1.5 generation speakers were *not sure*.

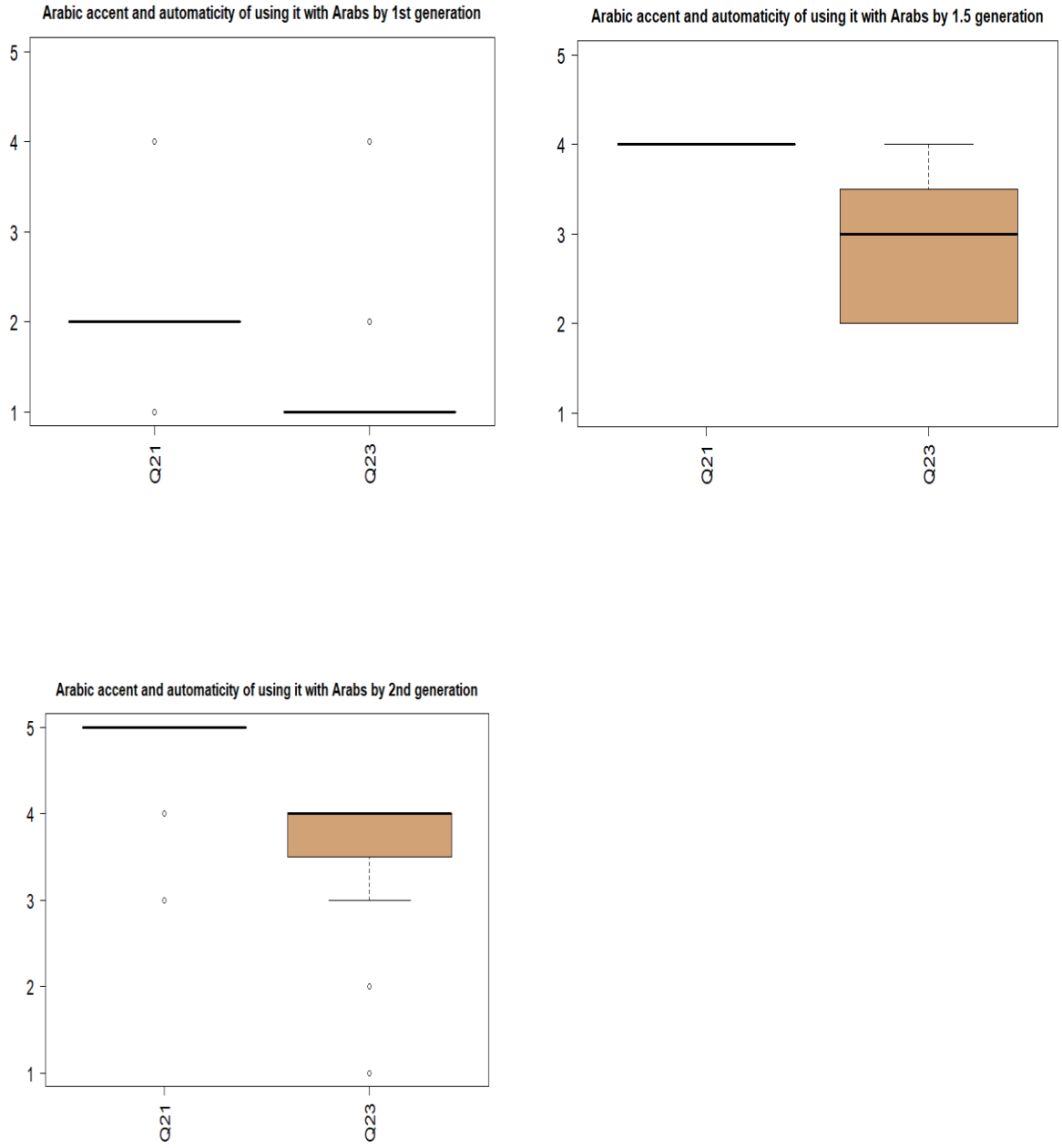


Figure 4. 22 Attitudes toward Arabic accent and automaticity of using Arabic with Arabs by generation (1 = strongly agree; 5 = strongly disagree)

The test for the LoR in New Zealand and the attitudes towards having the Arabic accent when speaking English and the automaticity of using Arabic when in company of Arabs (see Figure 4.23) showed significant differences between 1-10 years and 11-20 years LoR (p-value < 0.001); however, no significant differences were found between 1–10 years and 21-30 years (p-value < 0.29), and between 11-20 years and 21-30 years LoR (p-value < 0.23). The significant

result suggests that those who have been living in the country for a reasonably long time didn't value having Arabic accent in their English, or we can say that the participants wished to sound more native English like, but at the same time they did value their ability to automatically switch to Arabic when in the company of Arabs.

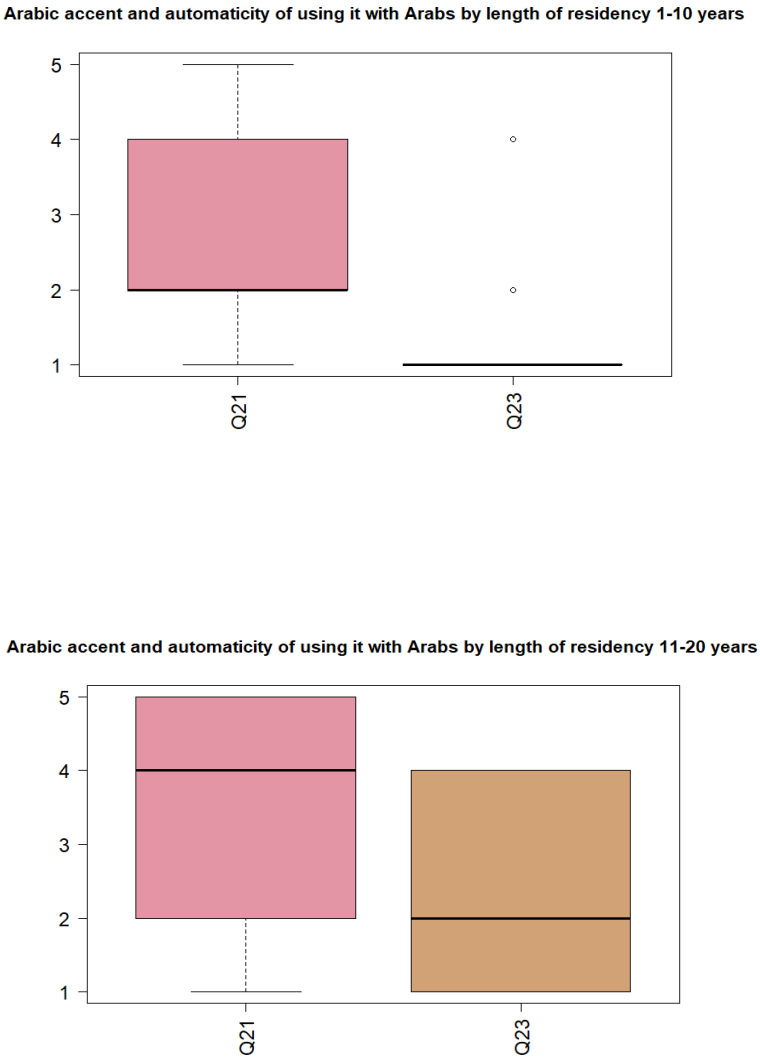


Figure 4. 23 Attitudes towards Arabic accent and automaticity of using Arabic with Arabs by LoR (1 = strongly agree; 5 = strongly disagree)

4.1.3.2 Attitudes towards English language PC2

PC2 comprises all items used to elicit the participants' attitudes toward the English language. It includes items 14, 15, 16, 17, 19, 22 and 24 (see Figure 4.24). The responses to these items indicate that the participants have positive attitudes towards English language and particularly towards NZE. A clear majority (64.24%) responded positively towards English language questions (mean = 1.788; median = 2).

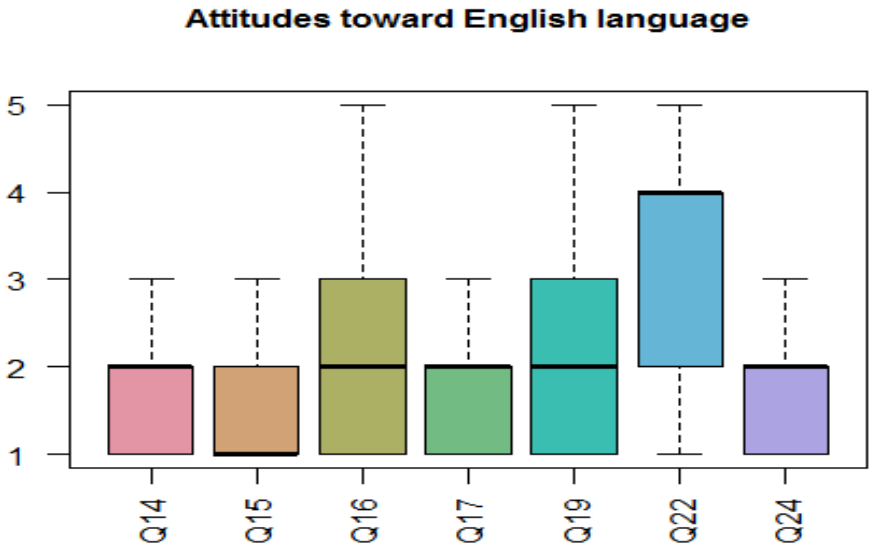


Figure 4. 24 Attitudes towards English language and NZ culture (1 = most positive; 5 = least positive)

4.1.3.2.1 Attitudes toward learning, speaking and automaticity of using English language

Items 14, 15 and 24 investigate the Jordanians' attitudes towards learning, speaking and the automaticity of using English language with native speakers of English (see Figure 4.24). The mean across these three items is 1.788, which indicates favourable attitudes. The participants displayed positive attitudes towards item 14 and the idea that knowing English as more important for getting a job than knowing Arabic (mean=1.788). Similarly, the participants showed positive attitudes towards item 15 and the idea that it is necessary for the Arab person in Christchurch to speak English language (mean=1.333). Likewise, the participants agreed with item 24, which related to the automaticity of using English when they speak to native speakers of English (mean=1.778). The median answers for these three items were 2.00, 1.00 and 2.00, respectively, which indicates that the Jordanian participants were generally in agreement with these three items.

Further analysis using the Wilcoxon Test showed that the two independent variables (generation and LoR) had a significant effect on the Jordanians' attitudes toward the importance of learning, speaking and automaticity of using English language (see Figure 4.25). The Wilcoxon Tests results showed statistical significant differences between 1st and 2nd generation participants (p-value < 0.001), 1st and 1.5 generations (p-value < 0.001), and between the 2nd and 1.5 generations (p-value < 0.036). 2nd and 1.5 generations have more positive attitudes towards learning, speaking and the automaticity of using English with native speakers, but all three generations recognised value in the three items and *agreed* with them.

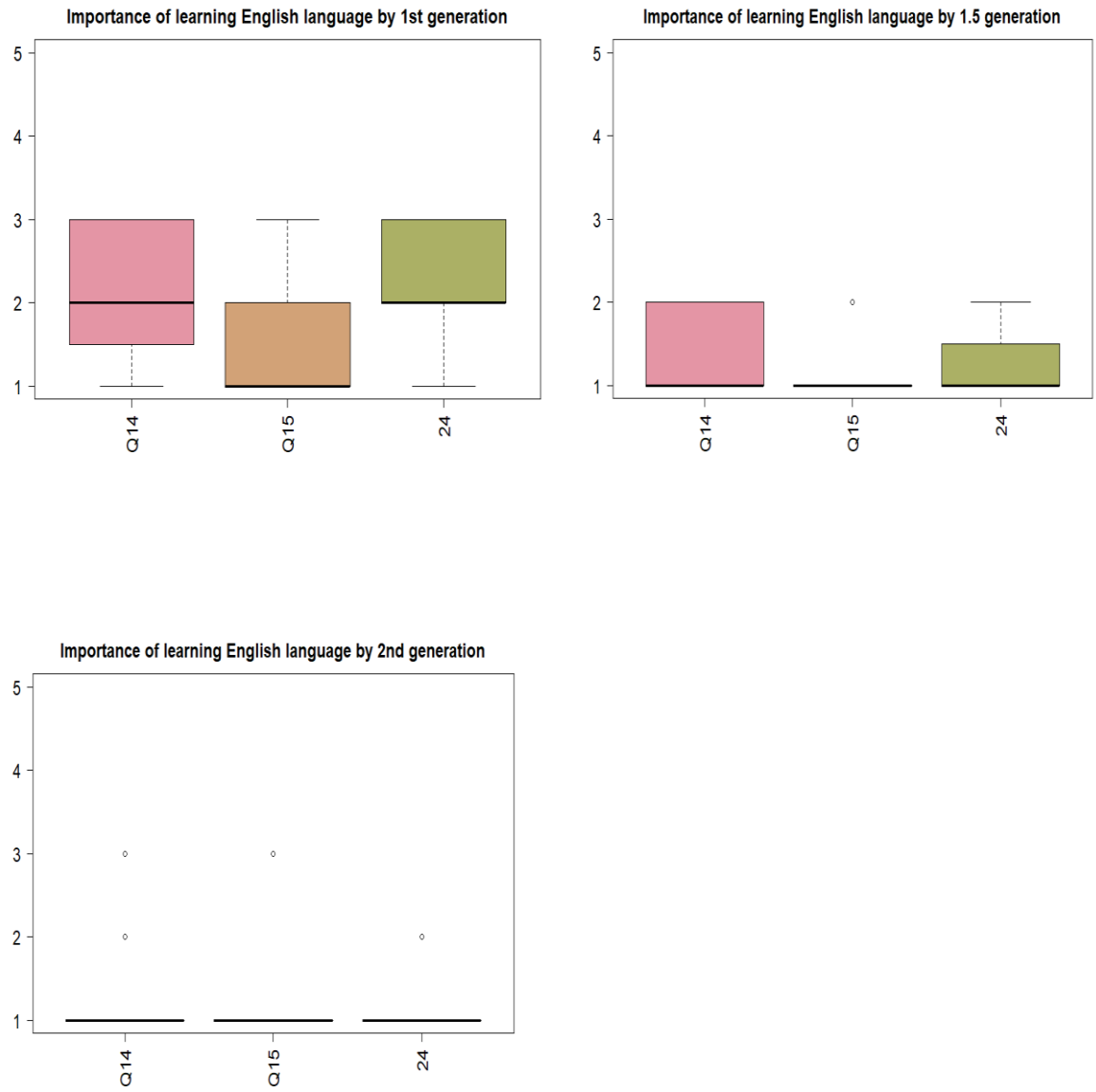
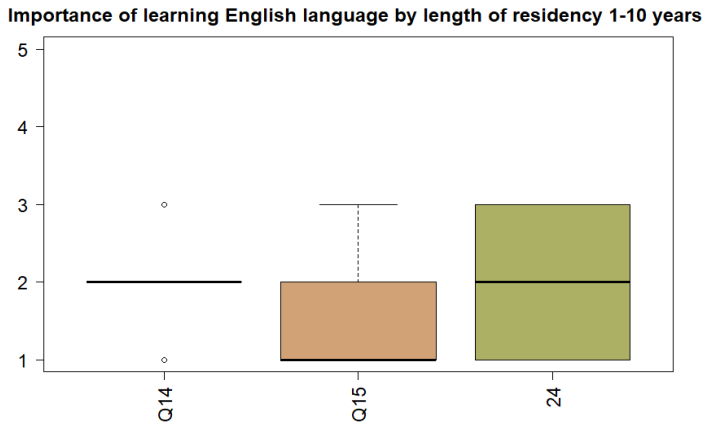


Figure 4. 25 Attitudes toward learning English language by generation (1 = strongly agree; 5 = strongly disagree)

The test for LoR in New Zealand and the attitudes towards learning, speaking and automaticity of using English language (see Figure 4.26) only showed significant differences between the 1-10 years and 11-20 years groups (p-value < 0.007), with the 11-20 year group having more positive attitudes towards learning the English language. It is interesting that there doesn't tend to be any significant difference between the 1-10 years and 21-30 years groups because speakers in that group were generally 1st generation immigrants who tended to have similar views to the 1-10 years group.

To conclude, although Jordanians displayed positive attitudes towards English and acknowledged its importance overall, there were variations in their answers, depending on their generation and LoR in NZ, with those from younger generations and those who have lived in NZ longer valuing English the most.



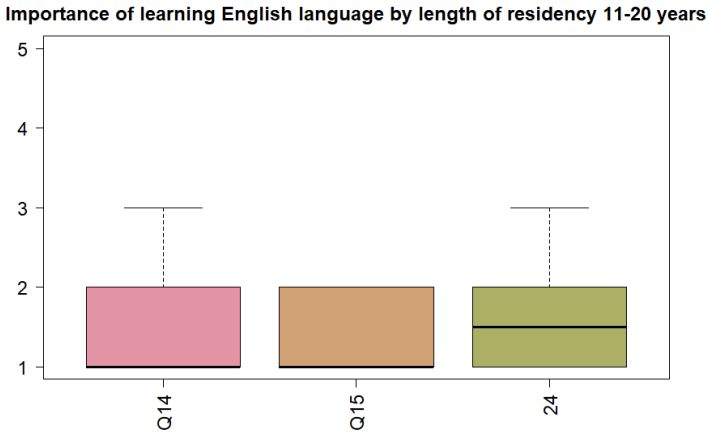


Figure 4. 26 Attitudes toward learning English language by LoR (1 = strongly agree; 5 = strongly disagree)

4.1.3.2.2 Attitudes toward NZ citizenship, culture, identity and accent

Items 16, 17, 19 and 22 (see Figure 4.24) investigate the Jordanians' attitudes towards having NZ citizenship, understanding NZ culture, acquiring a NZ identity and having a NZ accent when they speak Arabic. The mean across these four items (1.879) points to positive attitudes. Item 16 asked about the participants' perceptions about being New Zealand citizens or permanent residents, and the mean of 1.879 indicates that they have positive attitudes towards this item. The participants also agreed with the idea of the importance of understanding the NZ culture (mean=1.919). Likewise, the Jordanian participants affirmed the importance of speaking NZ English in order to have a NZ identity (mean=2.212). Their median answer for each of these three items 16, 17, 19 was 2.00, which further supports that the Jordanian participants were in general agreement with these items. However, the participants disagreed with item 22 and did not value having a NZ accent when speaking Arabic.

A Wilcoxon Test was conducted to assess whether any of the independent variables (generation and LoR) significantly influenced the Jordanians' attitudes towards having NZ citizenship, understanding NZ culture, having a NZ identity and having a NZ accent in their Arabic (see Figure 4.27). The Wilcoxon Tests results showed statistically significant differences between the 1st and 2nd generation participants (p-value < 0.001), 1st and 1.5 generations (p-value < 0.001), and between the 2nd and 1.5 generations (p-value < 0.028), with the younger generations having more positive attitudes towards NZ citizenship, culture, identity and a NZ accent in their Arabic. The test for correlations with LoR showed no significant results.

To sum up, the results show that 1.5 and 2nd generation participants show *agreement* with the notion of having a New Zealand accent in their Arabic, or we can say they wished to construct bicultural or bilingual identity. Whereas the 1st generation *disagreed* with this item and I can suggest they wished to sound more native Arabic like when they speak Arabic language. One more important result is that many of the 1st generation participants were *not sure* about the importance of speaking NZE to have a NZ identity, whereas the other two generations agreed with that. All three generations showed positive attitudes to having NZ citizenship and understanding NZ culture.

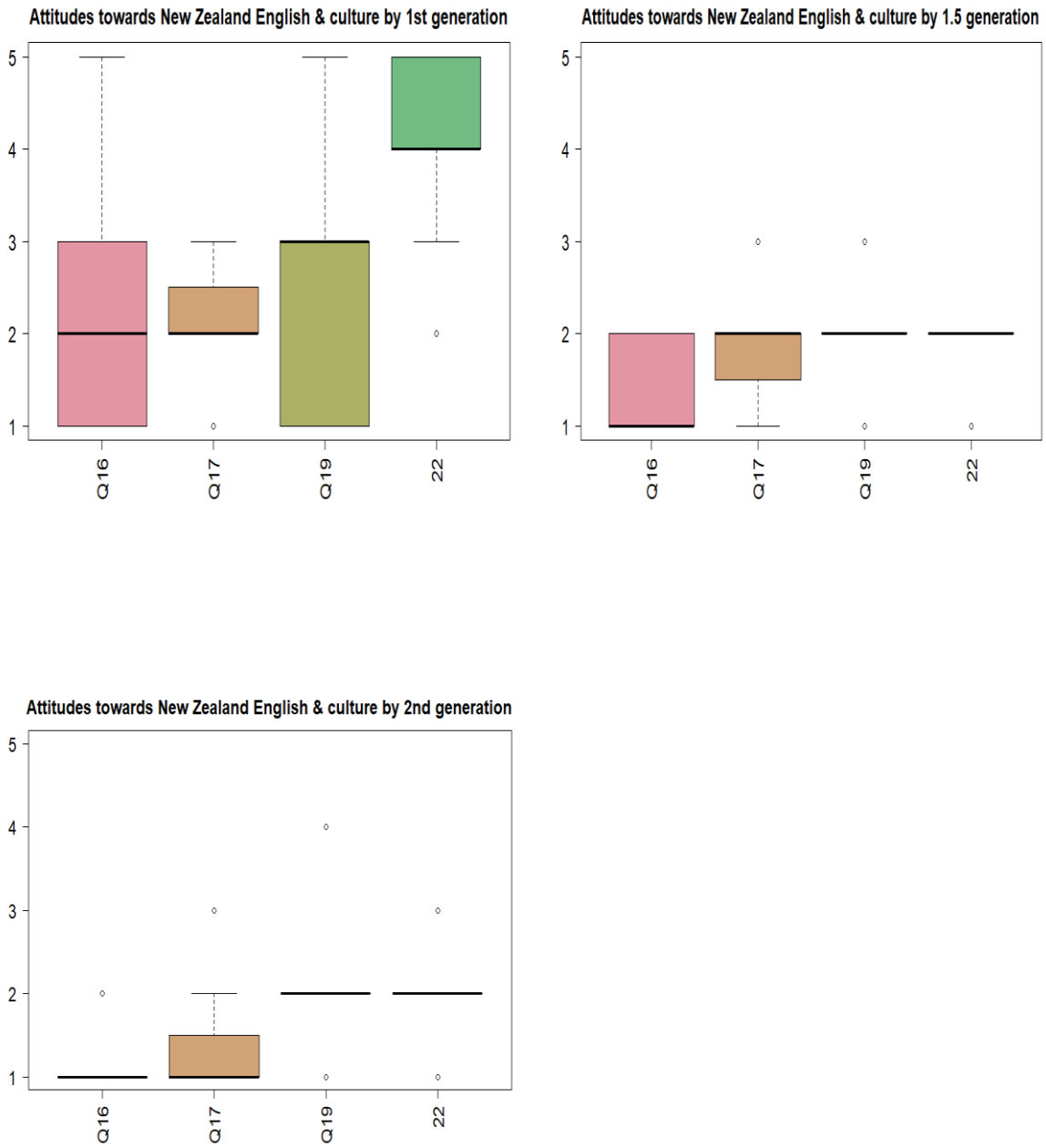


Figure 4. 27 Attitudes toward NZ citizenship, culture, identity and accent by generation (1 = strongly agree; 5 = strongly disagree)

To conclude, the results for the LMLS part of my study indicates that there is a sharp regression in the literacy skills of the heritage language among 1.5 and 2nd generations and those who have been in NZ between 11-20 years, and a greater decrease in writing skills among the 2nd generation participants. Heritage language maintenance was strongest in the home domain and lower in the religion and friendship domains. Reported English language use was highest in the friendship domain. The results also showed that Arabic Jordanians in Christchurch are very

loyal and positive towards the Arabic Language as the language of Quran and a symbol of their culture, Islamic and ethnic identity. They also showed positive attitudes towards English in general, and NZE and NZ culture in particular, due to its perceived usefulness as well as its status in the world.

The questionnaire survey results points to significant differences between the three generations and also different LoR groups. 1st generation immigrants and those who have been in the country from 1-10 years were more proficient in their ethnic language, use Arabic in all three domains, and have more positive attitudes towards their ethnic language than the other generations and LoR groups. On the other hand, 1.5 and 2nd generations and those who have been in the country 11-20 and 21-30 years were more proficient in English language skills, use English or both Arabic and English in all domains, and have lower positive attitude scores for questions relating to their ethnic language.

The following section will focus on the interviews and the quantitative results for the consonant and vowel variables investigated in this study.

4.2 The interviews

This section presents the results of an auditory analysis of the realization of two consonants, the ING variable and intervocalic /t/ and the results of the acoustic analysis of the three short front vowels KIT, DRESS and TRAP in NZE. This section will address the following four questions:

1- What social factors influence the nature of ING and intervocalic /t/ variation?

2- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behaviour and their production of the two consonants ING and intervocalic /t/ in NZE?

3- Will speakers' vowel variation be conditioned by social factors and lexical frequency?

4- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behavior and their production of the KIT, DRESS and TRAP vowels in NZE?

4.2.1 ING

This section presents the results of an auditory analysis of the realization of the ING variable in word-final and word-medial positions (e.g. 'walking' and 'singing') in the speech of Jordanian migrants living in Christchurch, New Zealand. The first two research questions above are addressed in this section:

1- What social factors influence the nature of ING and intervocalic /t/ variation?

2- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behaviour and their production of the two consonants ING and intervocalic /t/ in NZE?

4.2.1.1 Data distribution across speakers

Figure 4.28 shows the overall distribution for each variant in the conversation element of the interview for all 20 speakers. It is good to note that the most frequent variant is [ɪŋ], and makes up almost half of the ING tokens, and then comes the [ɪŋg] variant, and accounts for 29%.The third frequent variant is [ɪn], accounts for 21%. The fourth and the least common variant is [ɪŋk], makes up only 2% of the total number of tokens. This shows a clear preference for the full

realization of the expected velar [ɪŋ] ending, with a lower percentage of the velar plus stop ending [ɪŋg] and the alveolar [ɪn] being used, and very low use of the glottal [ɪŋk] variant.

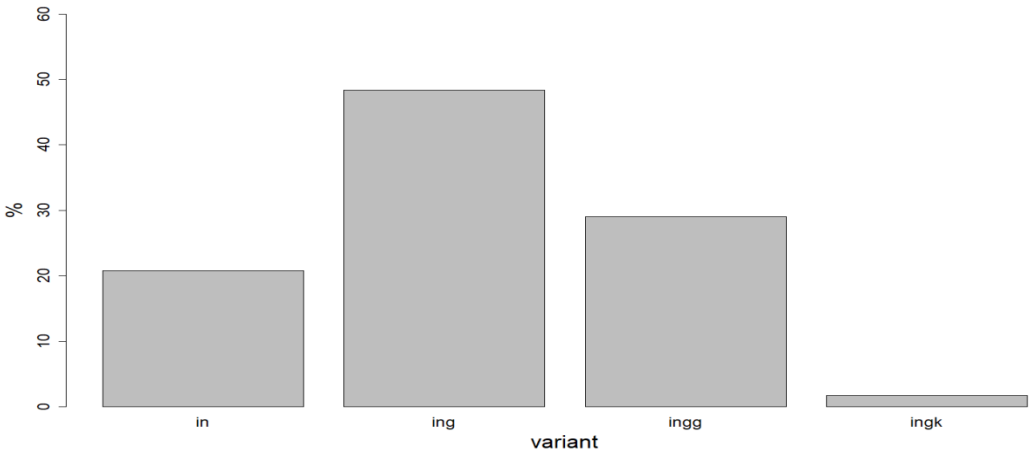


Figure 4. 28 Representing the proportion of ING variants in the production of all 20 speakers

Only four of the 20 speakers interviewed in this study used [ɪŋk]. This is a New Zealand form which is rarely used and restricted to 'thing' words such as *something, everything, anything and nothing* in NZE (E. Gordon, 1998). The four speakers who produced [ɪŋk] tokens are all from the first generation. This variant makes up only 12 of the total number of ING tokens. The tokens are found in words like *something, nothing, everything* and *thing* among three male speakers, while one older female speaker produced it in words like *encouraging, supporting, funding* as well as *thing*. Because this variant is not common among New Zealand and Jordanian speakers and was produced only by a few 1st generation speakers, I decided not to include it in my final analysis, which focused on the remaining 666 tokens of ING.

The standard variant [ɪŋ] was the most common variant for nine speakers, particularly from 1.5 and 2nd generations. The variant [ɪŋg] was common among eight speakers from the 1st generation. The variant [ɪn] was common among just three speakers, from 1st, 1.5 and 2nd generations, respectively. Five of the speakers from the three generations exhibited the use of all three variants, so that we find both inter- and intra-speaker variation within each generation; (inter-speaker variation means different speakers in the same generation used different variants; intra-speaker variation means the same speaker used more than one variant).

The social significance of the ING variable commonly lies in the variation between [ɪŋ] and [ɪn] in unstressed/weak syllables. However, this study contains one other variant, [ɪŋg]. The

first two variants are considered to be the most common variants among native speakers (NSs) of English in general and among New Zealand people in particular (see Bell & Holmes, 1992b; Hay et al., 2008; Hazen, 2006; Labov, 1966, 1990, 2001b; Reid, 1978; Trudgill, 1974). The third variant of ING produced by Jordanians is [ɪŋg], which might possibly indicate an acquisition of a local form (L1 interference) that is common amongst Jordanian speakers. Arabic only has the phoneme /n/, which is realized as [ŋ] when it precedes a velar consonant and Kalaldeh (2016) mentioned that the phoneme [ŋ] exists in the English phonological system but is not available in the Jordanian Arabic system and as a result of this absence, L1 Jordanian Arabic speakers add the sound [g] to the end of this English phoneme to make it closer to them in the place of articulation. In what follows in the next sections I provide a descriptive analysis for the distribution of the ING variable across the social factors (Gender, occupation, age at arrival/generation, LoR and attitude). Those two factors age at arrival/generation were treated as one in the analysis.

4.2.1.2 Descriptive analysis for the distribution of the ING variable across the social factors

4.2.1.2.1 Gender

The first social factor, gender difference, is often studied in the literature (Bell & Holmes, 1992b; Hay et al., 2008; Labov, 1990; Trudgill, 1974; Wald & Shopen, 1981). Figure 4.29 shows that males used the [ɪn] variant more than females, but females and males had the same percentage of [ɪŋ] variant use. Of the 14 speakers who used [ɪn], 6 were females and 8 were males. The 6 females produced 13% [ɪn], but the 8 males produced 31% [ɪn]. Of the 13 speakers who used [ɪŋ], 5 were females and 8 were males. The 5 females and the 8 males produced the same amount of [ɪŋ], 49%. Of the 12 speakers who used the non-New Zealand [ɪŋg], 6 were females and 6 were males. The 6 females produced 38% [ɪŋg], while the 6 males produced 19% [ɪŋg].

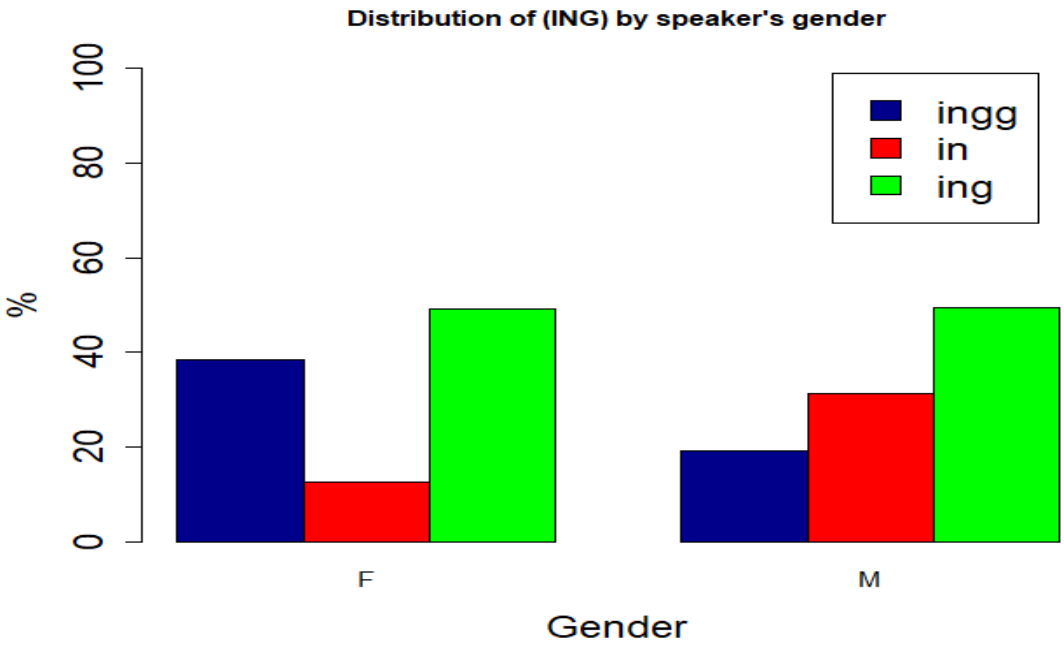


Figure 4. 29 The distribution of ING variants in the production of all 20 speakers by gender

It is interesting that [in] use seemed to be dramatically higher among men than women in some of the studies in Table 4.2 but not in others. These results are consistent with observations in the previous literature (Campbell-Kibler, 2005; Trudgill, 1974). Table 4. 2 provides an overview of the results from some existing studies of ING (Campbell-Kibler, 2005, p. 35).

Study	**Location**	**Men**	**Women**
Labov (1966)	New York	36	–
Shuy et al. (1967)	Detroit	62	21
Shopen (1978)	Canberra	24	16
Houston (1985), <35yo	Britain	88	72
Houston (1978), >35yo	Britain	78	76
Wald and Shopen (1985)	Canberra	23	24

Table 4. 2 shows the percentage of [in] in men's and women's speech across studies (From Campbell-Kibler, 2005, p. 35)

4.2.1.2.2 Occupation (in-work/not in-work)

The second social factor investigated was occupation (see Figure 4.30). Speakers were categorized as '*in-work' and 'not in-work'* in the study. 14 speakers were categorised as '*in-work'* and 6 categorised as '*not in-work'*. The New Zealand variants [ɪn] and [ɪŋ] were clearly

more frequent in the speech of *in-work* speakers (27% and 62%, respectively) than in that of *not in-work* speakers (1% vs 5%, respectively). On the other hand, the Jordanian variant [ɪŋg] was clearly more frequent in the speech of *not in-work* speakers (93%) than in that of *in-work* speakers (11%). According to the literature, speakers who are *in-work* tend to produce more native speaker variants (e.g., [ɪn] and [ɪŋ]) than those who are *no-in-work*, because high contact with native speakers would be more likely for *in-work* participants (Reid, 1978). According to the literature, the variant [ɪn] is associated with both informality and lower social class (Labov, 2001b; Trudgill, 1974). But this tendency has been reported for native speakers of English rather than migrants or L2 learners. As illustrated in Figure 4.30, the speakers who were *not in-work* hardly used the [ɪn] variant, but the ones who were *in-work* were using the [ɪn] variant.

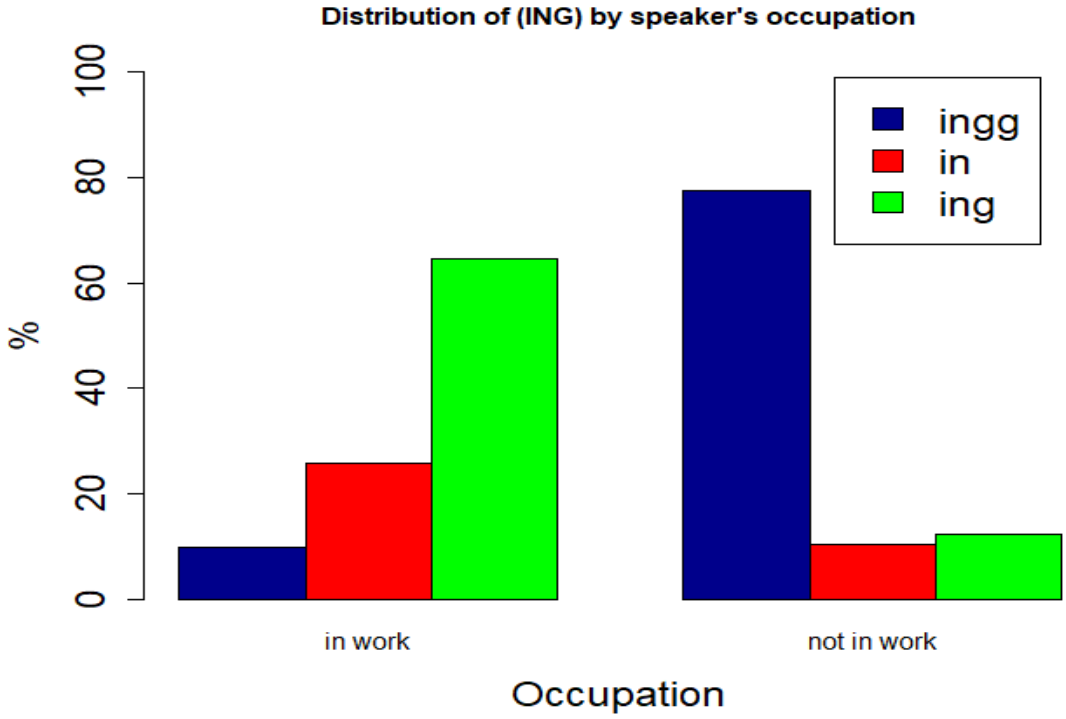


Figure 4. 30 The distribution of ING variants in the production of all 20 speakers by occupation

4.2.1.2.3 Generation/age Arrive

The third social factor which investigated was age-arrive/generation (where I use the abbreviation 'age-arrive' for the statistical analysis it stands in for generation). Speakers were categorised into three generations 2nd, 1.5 and 1st generations. The 2nd generation includes 4 speakers, the 1.5 generation includes 5 speakers and the 1st generation includes 11 speakers.

The New Zealand variants [ɪn] and [ɪŋ] were clearly the dominant variants in the speech of the 2nd and 1.5 generation speakers (see Figure 4.31). The non-New Zealand variant [ɪŋg] was not produced by these two generations at all, only the 1st generation used it. The 1st generation produced all three variants with the non-New Zealand variant [ɪŋg] most frequent at 54%, and the New Zealand variants [ɪŋ] and [ɪn] at 42% and 4%, respectively.

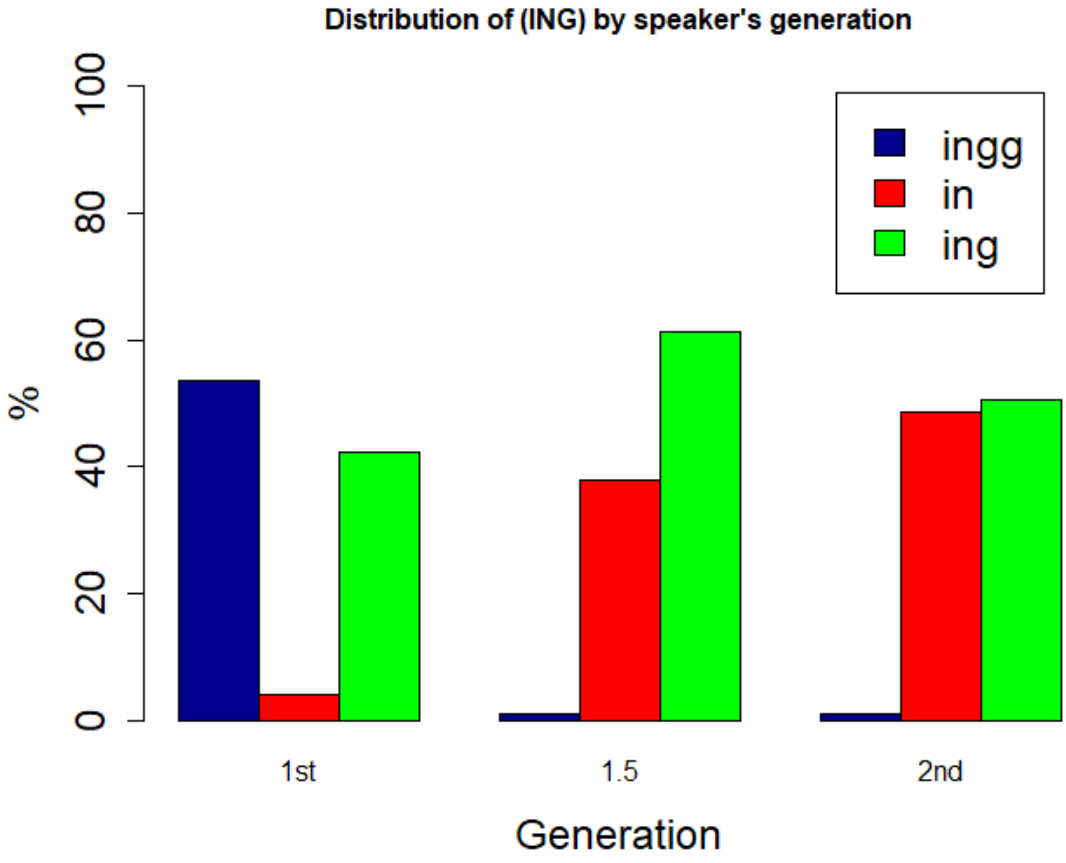


Figure 4. 31 The distribution of ING variants in the production of all 20 speakers across generations

4.2.1.2.4 LoR

The fourth social factor investigated was the LoR (see Figure 4.32). Speakers were categorised into three groups. The first group included 7 speakers and extended from 1 to 10 years, while the second group included 10 speakers and extended from 11 to 20 years and the third group included 3 speakers and extended from 21 to 30 years. It's clear from Figure 4.32 that the three groups used the three variants differently. The first group most frequently used the non-New Zealand variant [ɪŋg] (66%). The most frequent realisations in the second group were the New

Zealand variants [ɪŋ] (47%) and [ɪn] (32%). The third group also tended to use the NZ variant [ɪŋ] the most (51%), then the non-New Zealand one [ɪŋg] (31%) and finally the [ɪn] variant (18%).

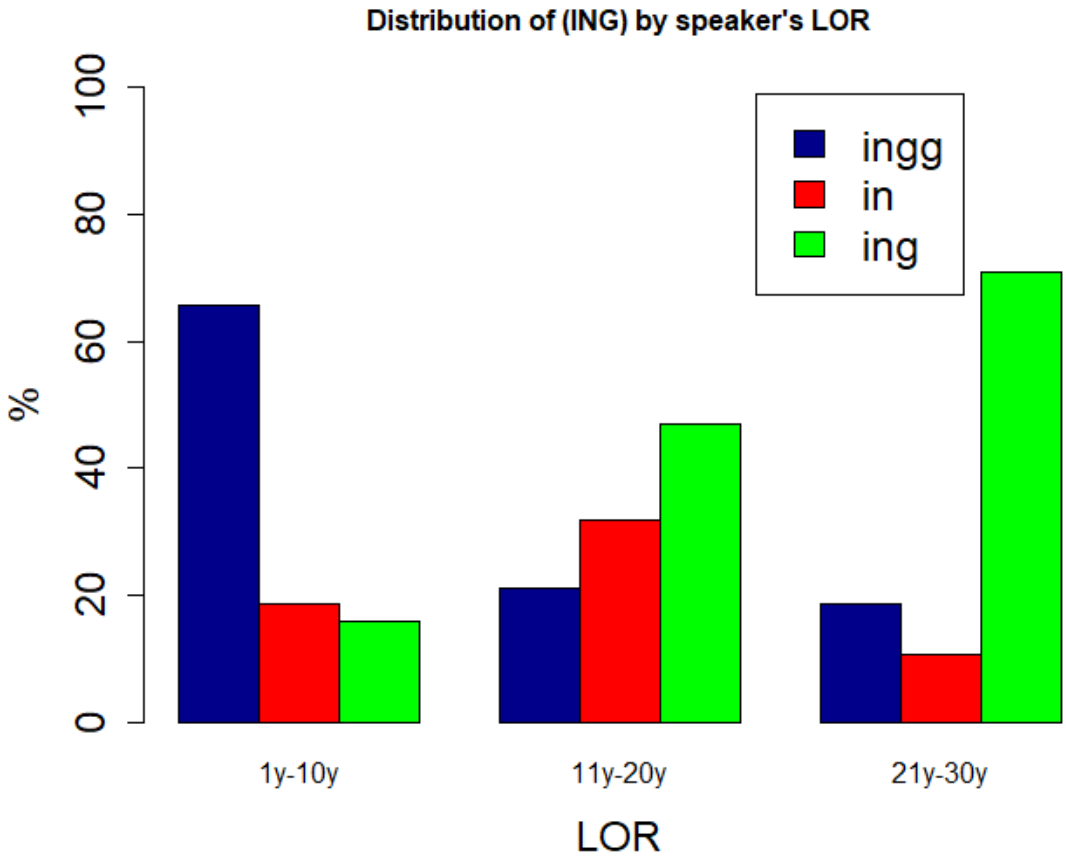


Figure 4. 32 The distribution of ING variants in the production of all 20 speakers by LoR

The next section presents the statistical analysis of the ING variable and its correlations with the social factors using a mixed effects logistic model. As for social factors, the effects of generation, gender, occupation, LoR, and attitudes (PC1 and PC2) on the production of variable ING will be tested. Those independent variables which will not show any statistical significance will be removed and the model will be rerun. So, the final analysis will include only the subset of independent variables that show statistical significance, aiming to explore in more detail the social factors which encourage the use of the native vs. non-native variants.

4.2.1.3 Statistical Analysis and the results for the ING variable

The 666 tokens of ING-sounds were hand-fitted into a mixed-effects logistic regression model implemented in R (R Core, Team, 2018). I began with a model with all the variables (gender,

occupation, generation, LoR, PC1 and PC2) and two random intercepts for *word* and *speaker* for any interactions. If a variable in a model showed no significance (p-value > 0.05), then the variable was removed. One variable, PC1, was not significant in the model (p-value = 0.62075). Before removing it from the model, I compared the two models with ANOVA. The ANOVA test worked better in its absence.

The mixed-effects logistic regression model treated ING in a binary way: whether it was "Native ING" (Ning) or "Non Native ING" (NNing). This means that the two variants of ING, [ɪŋ] and [ɪn] are collapsed together to represent the presence of (Ning), whereas the third variant [ɪŋg] represents the (NNing). The independent variables or "fixed effects" in the final model were the social factors (gender, occupation, generation, LoR and PC2), while the dependent variable was the presence of the (Ning). The best-fitted model was found to be the one given in Table 4.3, which shows the model summary for the final model predicting the use of (Ning).

m1 <- glmer((Ning) ~ gender + occupation + LOR + generation+PC2 +(1|Speaker) + (1|Target.orthography)

Fixed effects:					
	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-5.073	1.0134	-5.006	5.56E-07	***
gender-M	-1.6697	0.8423	-1.982	0.04745	*
occupation- in work	5.7441	0.9846	5.834	5.40E-09	***
Generation 2nd	3.9275	1.5028	2.613	0.00896	**
Generation 1.5	2.1107	1.0858	1.944	0.05191	.
LOR 11y-20y	2.6582	0.8817	3.015	0.00257	**
LOR 21y-30y	2.0457	1.132	1.807	0.07074	.
PC2	-2.4197	0.7416	-3.263	0.0011	**

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 3 Output of the logistic model for ING variation in the full data set

.

Table 4.3 shows that there are significant effects of male gender, occupation in work, 2nd generation, LoR 11y-20y and PC2 on the use of (Ning), with participants from those social backgrounds generally using more (Ning) than others (i.e., occupation not in work, 1st and 1.5 generations and LoR 1y-10y and 21y-30y), except males showing lower use of (Ning) than females (estimate = -1.6697). PC2 also shows a significant effect on the use of (Ning): the estimate for PC2 is negative rather than positive in the table, this is because positive attitudes

are represented by a low score for PC2. Participants who exhibit positive attitudes towards PC2 also tend to use more (Ning).

The significant effects are shown in Figure 4.33. In these figures, the Y-axes represent the log-odds of the probability of the ING variable being realized as (Ning), where a larger number refers to higher probability of (Ning). The X-axes represent the fixed effects.

The top left graph in Figure 4.33 shows that there was a negative relationship between the (Ning) & male gender (estimate -1.6697). The results indicate that (Ning) is more likely to be produced by females than males. This result is very close to results reported by Drummond (2012), who found teenager females' Polish migrants in Manchester (UK) produced more [in] variant than males did. At the same time, four variants of ING [ɪŋ], [ɪn], [ɪŋg], [ɪŋk], were found among them, and indicate that such variation is as stable in an L2 context as it is in an L1 context.

The top middle graph in Figure 4.33 shows that (Ning) was clearly more likely in the speech of the *in-work* speakers than in the *not in-work* speakers. This result reveals that native-like realisations of ING are a common feature in the production of the working speakers, but almost absent in the production of the *not in-work* speakers. It is well-known that speakers who are working tend to produce more native speaker variants (such as Ning) than those who are not working, because of high contact with native speakers (Reid, 1978). This result provides evidence supporting my hypothesis that (Ning) is a favored variant in the production of the *in-work* speakers.

The top right graph in Figure 4.33 shows that (Ning) was more likely in the speech of the 2nd generation (who arrived before the age of 6) than in the 1st and 1.5 generations. The 1.5 generation speakers used more (Ning) than the 1st generation ones. This result indicates that this feature was a common feature in the speech of the 2nd and 1.5 generations, while it was very rare in the production of the 1st generation, and this confirms my hypothesis that (Ning) will be the favoured variant in the production of the 2nd and 1.5 generation speakers. I anticipated that the younger a speaker is on arrival the country, the more likely it is that a native-like pronunciation will be achieved. According to the literature, speakers who arrive at the host country at a very young age are likely to acquire the dominant language features faster and more easily than those who came at a later age (Adamuti-Trache, 2013; Jette Edwards, 2006).

The bottom left graph in Figure 4.33 shows that (Ning) was clearly more frequent in the speech of the 11-20y LoR than in the 1-10y LoR and also somewhat more frequent than the 21-30y LoR. 21-30y LoR used less (Ning) than 11-20y LoR this is maybe because two participants in this group were old and from the 1st generation while the third was from the 1.5 generation. 1-10y LoR speakers used less (Ning) than the 21-30y LoR. This outcome indicates that this feature was a common feature in the production of the 11-20y and 21-30y LoR, while it was hardly used in the production of the 1-10y LoR. This ties in with observations in the literature, that the more years you spend in the host country, the likely it is that you will acquire the dominant language and its features (Adamuti-Trache, 2013). This result confirms my hypothesis that (Ning) is a favoured variant in the production of the 11-20y and 21-30y LoR speakers.

The bottom right graph in Figure 4.33 shows the final significant social factor: attitudes towards PC2. In general, the expected direction of attitude effects is that a positive correlation will be found between the use of the (Ning) pattern and attitudes towards (PC2). That is, speakers with more positive attitudes towards English, NZE culture and identity (= low PC2 score) will have a higher probability of adopting the (Ning) variant. The effect of speakers' attitudes was found to be significant in the data set. Speakers with low PC2 scores were more likely to use the (Ning) variant. This result confirms my hypothesis that speakers' attitudes will positively influence their linguistic production.

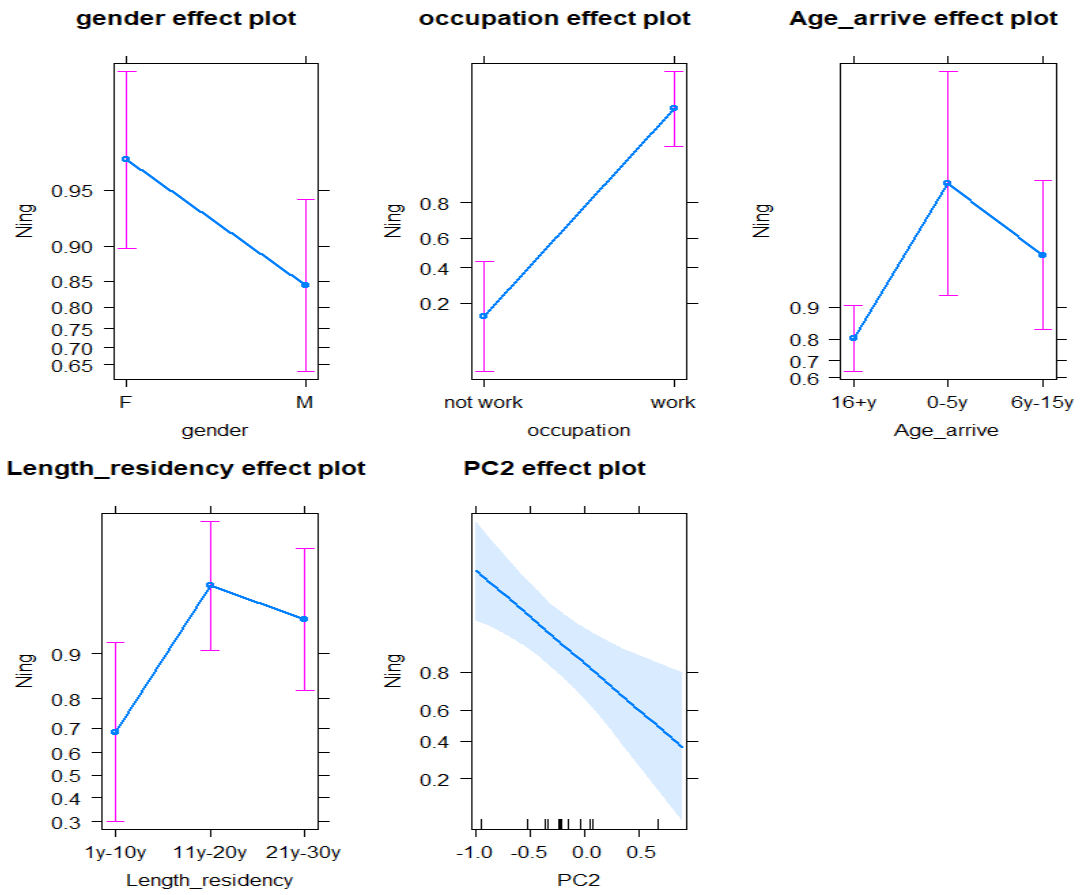


Figure 4. 33 The output of the logistic regression model which estimated the presence of the (Ning) variant by gender, occupation, Age-Arrive (generation), LoR and (PC2)

4.2.2 Intervocalic /t/

This section presents the results of an auditory analysis of the realization of the intervocalic /t/ variable within one word (as in *society*, *matter and better*) and across a word boundary (as in lot *of*, *get it and sort of*) in the speech of Jordanian migrants living in Christchurch, New Zealand.

In this chapter, the following research questions are addressed:

1- What social factors influence the nature of intervocalic /t/ variation among Jordanian speakers?

2- Do speakers' attitudes collected through questionnaires and interviews predict linguistic behaviour and the production of the intervocalic /t/?

4.2.2.1 Data distribution across speakers

Figure 4.34 shows the overall percentage for each variant in the conversation section of the interviews in the ‘‘ArabEng’’ corpus. The standard variant CANONICAL is the most common overall, accounting for 51% of the total number of /t/ tokens. The FLAP variant is the second most frequent variant, accounting for 41% of the total number of /t/ tokens. The third frequent variant is the GLOTTAL STOP, accounting for 5% of the total number of /t/ tokens. The least common variant is the DROPPED variant, which made up 3% of the total number of tokens. This descriptive result shows a clear preference for the use of both CANONICAL and FLAP variants of /t/ among Jordanian speakers of English in Christchurch.

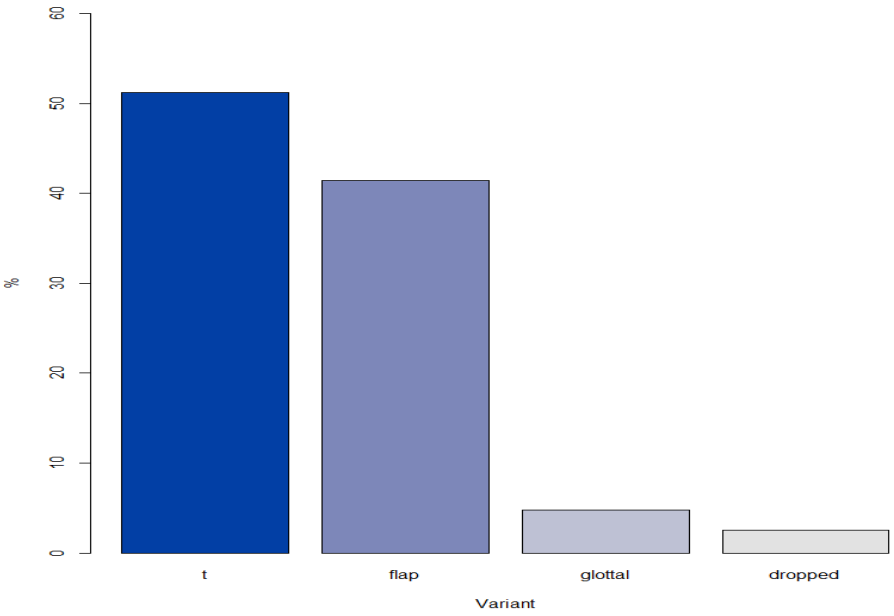


Figure 4. 34 The proportion of the four intervocalic /t/ variants in the production of all 20 speakers

4.2.2.2 Descriptive analysis for the distribution of the /t/ variants across the social factors

The primary analysis for intervocalic /t/ included the social factors generation, gender, occupation, LoR, PC1 and PC2 and was intended to explore which independent variables influence the production of CANONICAL, FLAP, and GLOTTAL STOP variants. I also carried out a statistical analysis using mixed effects logistic models in R. Only the subset of independent variables that exhibit statistical significance were included in the final statistical analysis. In what follows, in this section, I report on the descriptive analysis for the influence of demographic factors on the three principal variants, CANONICAL, FLAP, and GLOTTAL STOP.

4.2.2.2.1 Generation/age Arrive

Generation is the first social variable to be considered in this study. Figure 4.35 shows that the first generation speakers use more CANONICAL [t] (72%), than the 1.5 generation (27%) and second generation (31%). The New Zealand FLAP variant was more frequent in the speech of 1.5 generation (64%), and second generation (60%) than in the first generation (26%). The third variant of /t/ is the GLOTTAL STOP, which is more frequent in the speech of second generation (9.4%) and 1.5 generation (9%) participants, than in the speech of the first generation (1.4%).

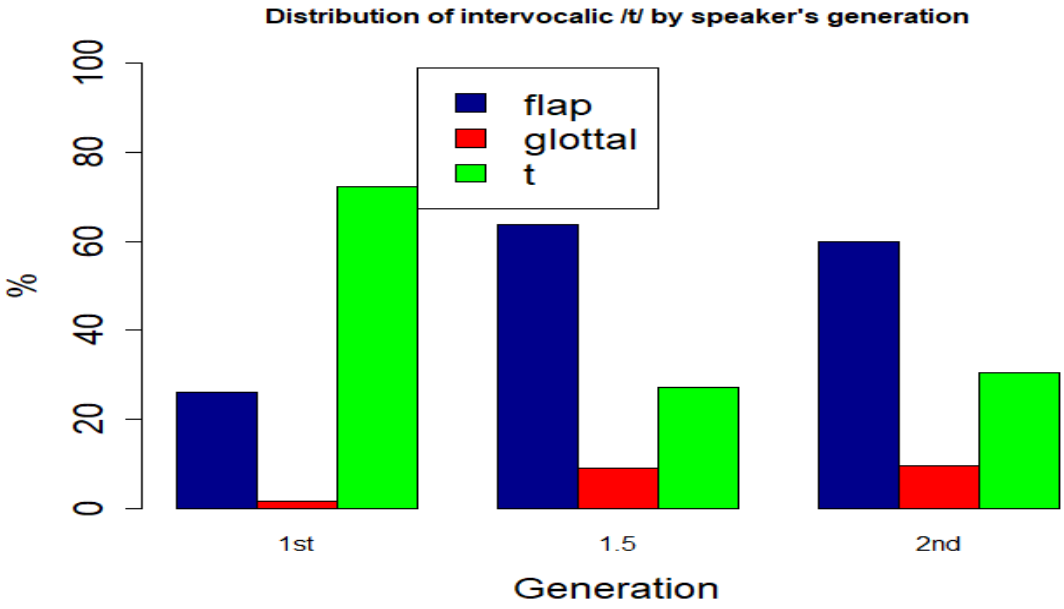


Figure 4. 35 The distribution of intervocalic /t/ variants in the production of all 20 speakers by generations

4.2.2.2.2 Occupation (in-work/not in-work)

The second social factor investigated is occupation (see Figure 4.36). 14 speakers are categorised as *in-work* and 6 as *not in-work*. The CANONICAL [t] is clearly the most frequent variant among *not in-work* speakers (87%), but used considerably less by *in-work* speakers (40%, who exhibit a greater preference for the FLAP variant 54%. The New Zealand variants FLAP and GLOTTAL STOP are comparatively rare in the speech of *not in-work* speakers (12% and 1%, respectively), and even *in-work* speakers only used the GLOTTAL STOP variant 6% of the time .

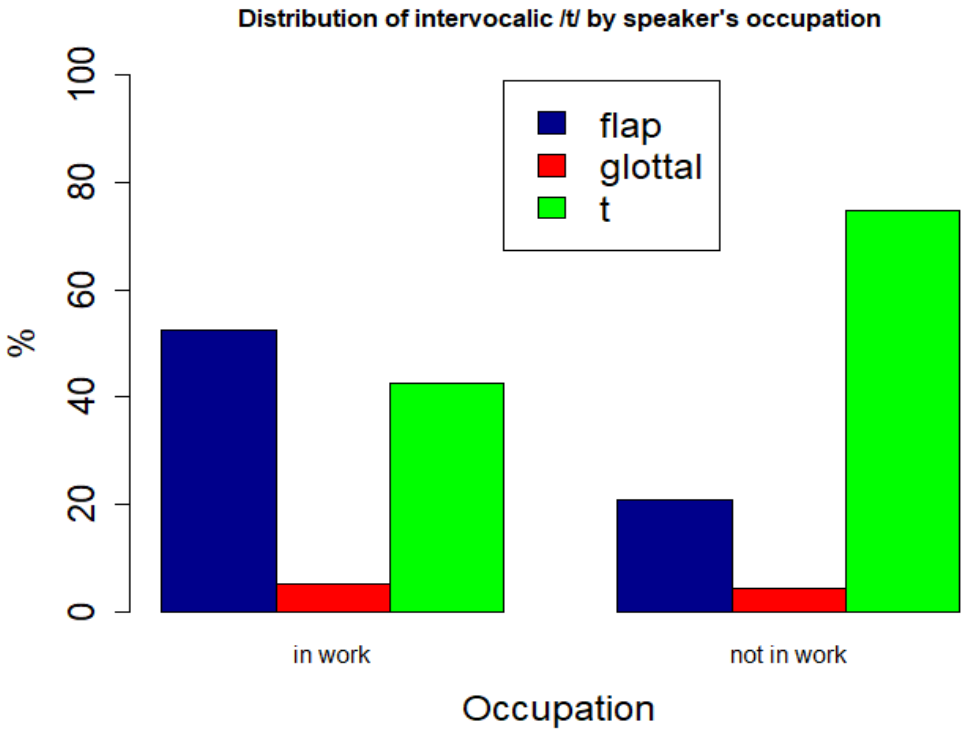


Figure 4. 36 The distribution of intervocalic /t/ variants in the production of all 20 speakers by occupation.

4.2.2.2.3 Gender

The third social factor that will be described in this study is gender. Figure 4.37 shows that females use the standard CANONICAL [t] in 56% of the tokens, and males use it 50% of the time. Males use the New Zealand variant FLAP 45% of the time, which is slightly more than females at 39%. This result ties in with (Holmes, 1994, 1995b), Silby (2008) and H. B. Woods (1991), who found that working class men tend to use significantly more T voicing than working class women, although Silby (2008) claimed that non-professional females are now FLAPPING nearly as much as non-professional males, while professional females as a group still produce the fewest t-FLAPS. Bell (1990) showed that t-FLAPPING used to come with males more than the females. Holmes (1994) found change in progress toward [d], with significant sex and class correlations. Young working-class males were leading the change, and their production of [d] was found to be 'semi-categorical' (Holmes, 1994, p. 215). This kind of change is described as a 'change from below' Labov (1994, p. 78)which is driven by men and lower socioeconomic groups. More recently, Hay et al. (2008) argued that speakers from higher social classes avoid t-FLAPPING. However, in their study they showed that the situation is changing; the non-professional females FLAPPED almost as much as the non-professional males and the

professional females are coming within 10% of the professional males, although the professional females still use the fewest t-FLAPS.

There were no clear differences between male and female speakers in the use of GLOTTAL STOPS. Both genders were found to use GLOTTAL STOP 5% of the time. The score of 56% CANONICAL for female speakers is not actually much higher than that of the men.

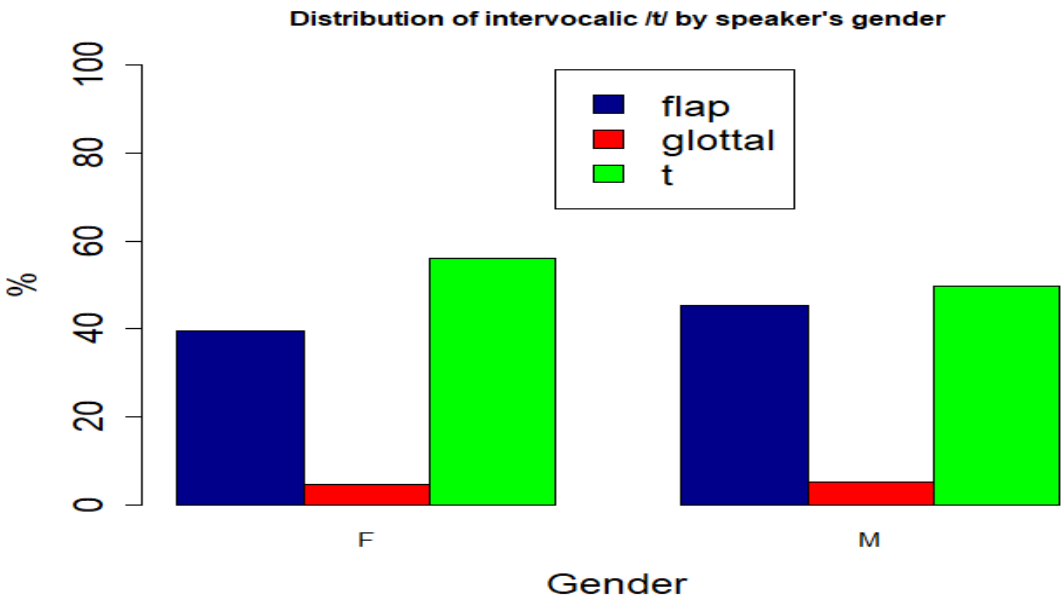


Figure 4. 37 The distribution of intervocalic /t/ variants in the production of all 20 speakers by gender

4.2.2.2.4 LoR

As can be seen from Figure 4.38, the CANONICAL variant has the highest frequency in the first LoR group (1-10y) with a percentage of 83%, while FLAP was the second most common variant with a percentage of 14%. In the second (11-20y) and third (21-30y) LoR groups the FLAP variant was the most frequent, with percentages of 50% and 53%, respectively. The CANONICAL variant was used 41% and 46% of the time, respectively. GLOTTAL STOP was rarely used by members of the 21-30 year LoR group (1%). The 11-20 group used the GLOTTAL STOP variant 9% of the time and the 21-30 group 3% of the time. An increase in the LoR results in an increase in the use of the FLAP variant, which has a frequency of 53% in the third group, 50% in the second group, and 14% in the first group 14%.

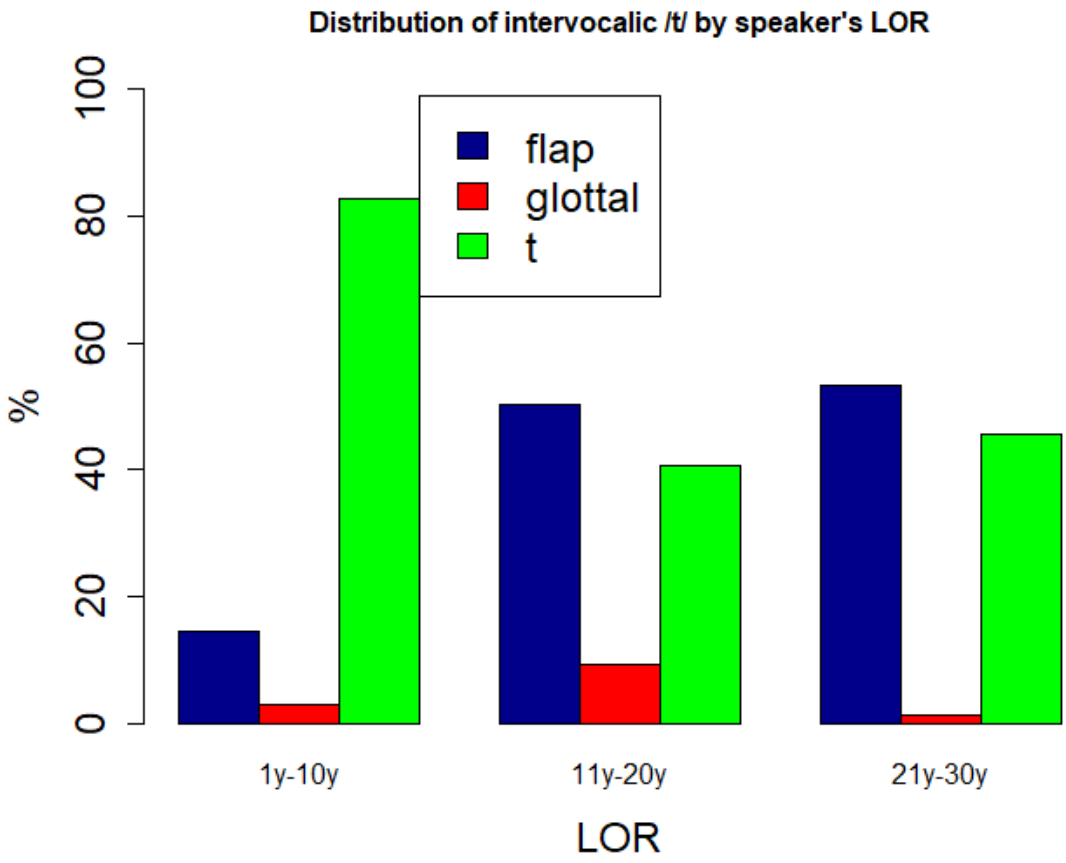


Figure 4. 38 The distribution of intervocalic /t/ variants in the production of all 20 speakers by LoR

4.2.2.3 Statistical Analysis and the results for the intervocalic /t/

The 1142 tokens of intervocalic /t/-sounds were hand-fitted into a mixed-effects logistic regression model implemented in R (R Core, Team, 2018). We began with a model with all the variables (gender, occupation, generation, LoR, PC1 and PC2) and two random intercepts for word and speaker without any interactions. From the CANONICAL model, three variables were subsequently removed (PC1, PC2 and occupation). In the FLAP model, we removed PC1, PC2 and gender. From the GLOTTAL model, all the variables were removed except generation. Variables were removed because they did not converge well and their p-values were not significant ($p < 0.05$) in the models. Gender was not removed from the CANONICAL model despite not being significant because the ANOVA test worked better with its inclusion, which suggested that it should be retained in the model. The AIC was 919.76 in the best model vs 920.74 in the other model (lower the score, better the model). However, gender will not be discussed further in the CANONICAL analysis section.

4.2.2.3.1 CANONICAL [t]

Table 4.4 shows the model summary for the final model predicting the use of CANONICAL [t].

m2 <- glmer(canonical~gender+generation+LoR+(1|Speaker)+(1|Target.orthography

Fixed effects:					
	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	1.846	1.531	1.206	0.22798	
Gender M	-1.979	1.183	-1.674	0.0942	.
Gen. 1.5	4.148	1.694	2.448	1.44E-02	*
Gen. 1st	5.892	1.397	4.216	2.49E-05	***
LoR 11y-20y	-4.845	1.492	-3.247	0.00117	**
LoR 21y-30y	-4.652	1.878	-2.477	0.01324	*

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 4 The model summary for the final model predicting the use of CANONICAL [t]

The table represents the output of the logistic regression model estimating the realisation of the CANONICAL [t]. It shows that there are significant effects of generations 1.5, 1st, and LoR 11y-20y and 21y-30y on the use of CANONICAL [t]. 1st generation and 1-10y LoR participants used more CANONICAL [t] than others. These significant effects are shown in Figure 4.39. In these graphs, the Y-axes represent the log-odds of the probability of the CANONICAL [t] variant. A larger number refers to higher probability of being produced CANONICAL [t], and the X-axes represent the fixed effects.

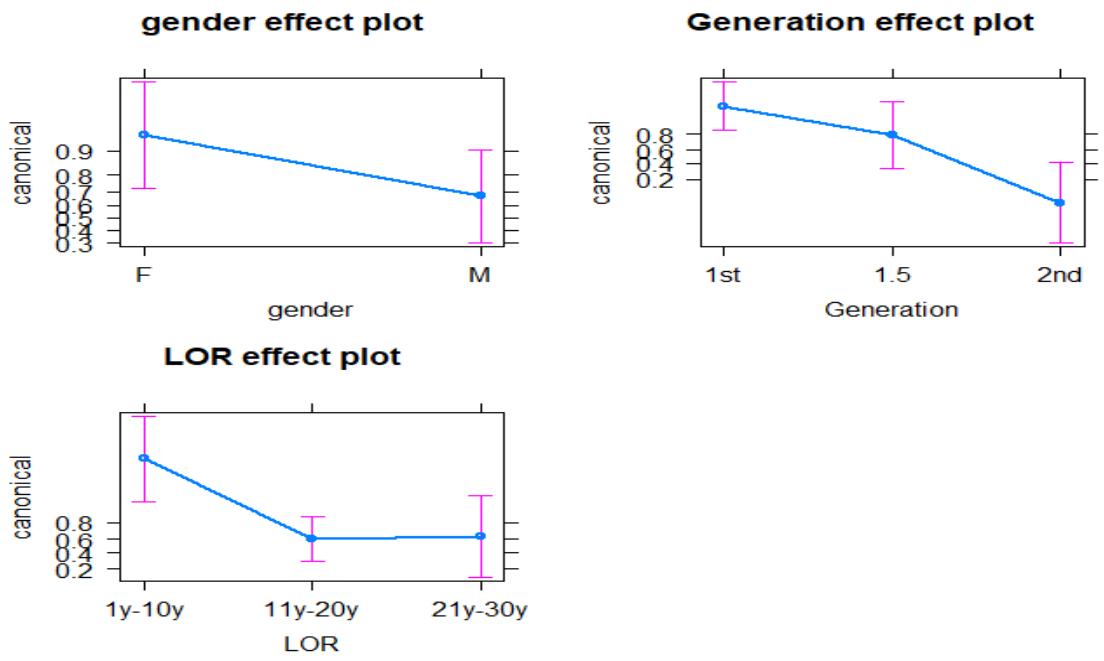


Figure 4. 39 *The output of the logistic regression model which estimates the likelihood of the* CANONICAL *[t] realisation by gender, generation and LoR*

The top right graph in Figure 4.39 shows the use of CANONICAL [t] across generations (1st, 1.5 and 2nd). The analysis indicates that CANONICAL [t] is more frequent in the speech of the 1st generation than in the 2nd and 1.5 generations. The 1.5 generation speakers also use more CANONICAL [t] than the 2nd generation ones. This result is evidence supporting my hypothesis that CANONICAL [t] is a favoured variant in the production of the 1st generation speakers rather than in the 1.5 and 2nd generations, and it goes hand in hand with observations in the existing literature (Alshboul, 2018).

The bottom left graph in Figure 4.39 shows the use of CANONICAL [t] across the three LoR groups (1-10y, 11-20y and 21-30y). The analysis reveals that CANONICAL [t] is considerably less frequent in the speech of the 2nd group (11-20y) and 3rd group (21-30y) than in the 1st (1-10y) group. There is a clear difference in the use of CANONICAL [t] between the 1st and 2nd groups and between 3rd and the 1st group. This result is expected and evidence in support of my hypothesis that CANONICAL [t] is a favoured variant among the 1st LoR group of speakers.

4.2.2.3.2 FLAP

Table 4.5 below shows the model summary for the final model predicting the use of FLAP. It represents the output of the logistic regression model estimating the realisation of the FLAP variant.

m5.1 <- glmer(flap ~ Generation+occupation+LoR+ (1|Speaker)+(1|Target.orthography)

Fixed effects:					
	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-3.8055	0.8423	-4.518	6.25E-06	***
Generation1.5	1.1518	0.8732	1.319	0.187119	
Generation2nd	2.9379	0.8619	3.409	0.000653	***
Occupation in-work	2.0996	0.8165	-2.572	0.010122	*
LoR11y-20y	3.0086	0.866	3.474	0.000513	***
LoR21y-30y	2.8013	1.0655	2.629	0.008559	**

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 5 The output of the logistic regression model estimating the realisation of the FLAP variant

Table 4.5 shows that there are significant effects of 2nd generation, occupation in-work and LoR 11y-20y and 21y-30y for FLAP, with participants in these groups using more FLAP than others (i.e., 1st and 1.5 generations, not in-work and LoR 1y-10y). These significant effects are shown in Figure 4.40. In these graphs, the Y-axes represent the log-odds of the probability of the FLAP variant, where a larger number refers to higher probability of intervocalic /t/ being produced as a FLAP. The X-axes represent the fixed effects.

The top left graph in Figure 4.40 shows the use of the FLAP across generations. The analysis demonstrated that the FLAP variant was considerably more common in the speech of the 2nd generation than in the 1st and 1.5 generations. The 1.5 generation speakers used more FLAP than the 1st generation ones, but the result was not significant. It looks like the results provide clear evidence that the FLAP variant is favoured by 2nd generation speakers, but the evidence for 1.5 generation speakers is not so clear.

The bottom left graph in Figure 4.40 shows the use of the FLAP across the three LoR groups. It is noticeable that there is much higher use of the FLAP variant in the productions of the 11y-20y and 21y-30y LoR than in the speech of the 1y-10y LoR, where it is rare. This ties in with observations in the literature, that the more years you spend in the host country and interact in and are exposed to the majority language, the more you will be able to acquire the dominant

language and its features (Adamuti-Trache, 2013). This result is evidence supporting my hypothesis that the FLAP is a favoured variant in the production of the 11-20y and 21-30y LoR speakers.

The top right graph in Figure 4.40 shows the use of the FLAP by occupation. The results indicate that FLAP is more likely to be produced by *in-work* than *not in-work* speakers. According to the literature, speakers who are working tend to produce more native speaker variants (such as FLAP) than those who are not working, because of high contact with native speakers in the work environment (Reid, 1978).

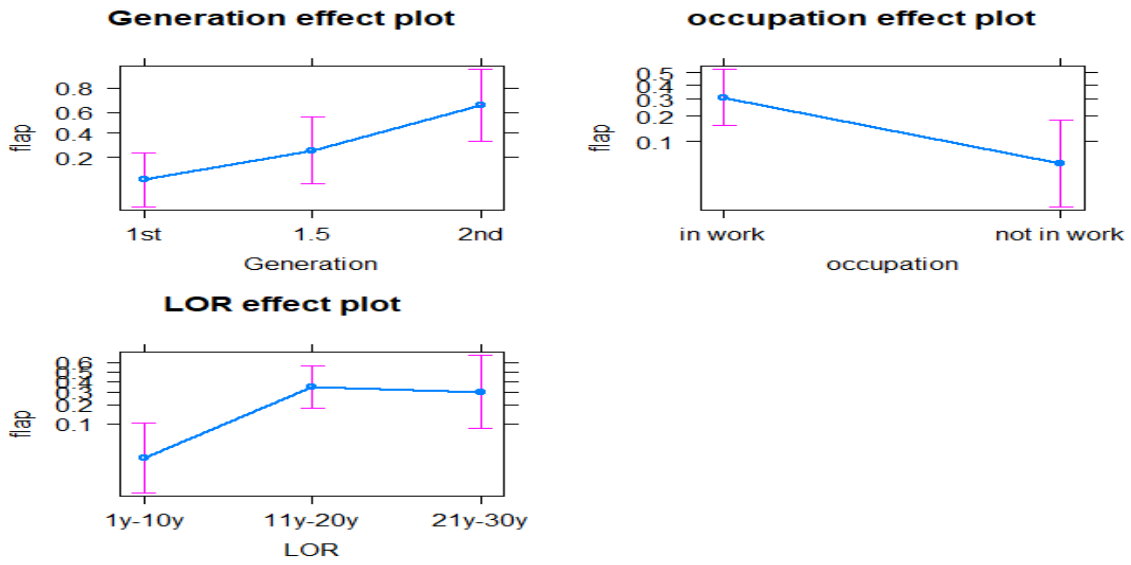


Figure 4. 40 The output of the logistic regression model which estimates the likelihood of the FLAP realisation by generation, occupation and LoR

4.2.2.3.3 GLOTTAL STOP

Table 4.6 shows the model summary for the final model predicting the use of GLOTTAL STOP. It represents the output of the logistic regression model estimating the realisation of the GLOTTAL STOP variant.

m6.5 <- glmer(glottal ~ Generation+(1|Speaker) +(1|Target.orthography)

Fixed effects:					
	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-13.373	1.923	-6.955	3.54E-12	***
Generation 1.5	2.395	1.668	1.436	0.1511	
Generation 2nd	3.739	1.775	2.107	0.0351	*

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 6 Representing the output of the logistic regression model estimating the realisation of the GLOTTAL STOP

The above table shows that there are significant effects of 2nd generation on GLOTTAL STOP use. 2nd generation participants used more GLOTTAL STOP than the 1st and 1.5 generation.

This significant effect is shown in Figure 4.41. In this figure, the Y-axes represent the log-odds of the probability of the GLOTTAL STOP variant, where a larger number refers to higher probability of intervocalic /t/ being produced as a GLOTTAL STOP. The X-axes represent the fixed effects.

Figure 4.41 shows that 2nd generation tends to produce the highest GLOTTAL STOP. GLOTTAL STOP in the speech of both the 2nd and 1.5 generations is more common than in the production of the 1st generation speakers. This result is expected and supports my hypothesis that 1st generation speakers will show the least use of the GLOTTAL STOP variant, when compared to the other two generations. This result also ties in with Alshboul (2018), who found the highest rate of glottal stops produced by young generations.

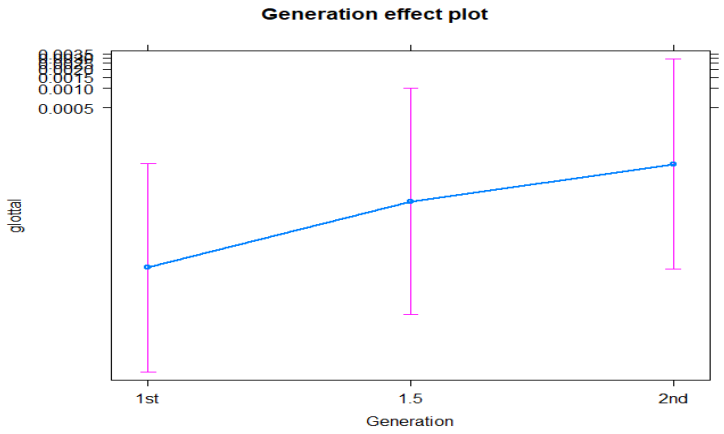


Figure 4. 41 The output of the logistic regression model which estimates the likelihood of the glottal stops realisation across three generations

4.2.3 Vowels Analysis DRESS, KIT and TRAP

This section is dedicated to the analysis of the NZE short front vowels KIT, DRESS and TRAP. I first present the production of these vowels by some speakers and the use of these vowels across generations and genders with a brief discussion, and I then provide and discuss the results of the statistical analysis for each of the vowels.

4.2.3.1 Productions of some speakers for the NZE vowels

In this section I compare several Jordanian speakers' productions of NZE and consider the 'salient features realisations of KIT, DRESS and TRAP' in their performance. I chose six speakers as a sample; two speakers from the 2nd generation, two from the 1.5 generation and two from the 1st generation in order to show the visual vowel space differences between them, focusing mainly on the three NZE short front vowels KIT, DRESS and TRAP. For visual comparison with native NZE speakers' vowel spaces, the stressed vowels produced by *Laila, Samera, Anwar, Adam, Kamal and Ward* were plotted. These particular six speakers were chosen because the visual differences between their vowel plots are clearer than for other speakers. Their productions of the NZE salient features are discussed in more detail in Section 5.3, where they are related to the speakers' comments in the interviews about NZE accent, identity and attitude.

1- Laila

Laila is a 21-year-old female native speaker of English and Arabic, who can be classed as an English L1 speaker. She rarely visits Jordan, but often joins Arab social gatherings and meets Arabs from different generations in Christchurch. She came to NZ when she was two years old and began her formal study of English at the age of about 4 at kindergarten in NZ. Later, as an adult, she joined the University of Canterbury. She speaks Arabic mostly with her parents and 1st generation Arab people. Her parents don't speak English with her. She reported using English most of the time except with her parents, elder Arab people and when praying. She is more comfortable speaking English. From informal observation, she generally interacts with other Arab Jordanians in English, especially with friends and other young people.

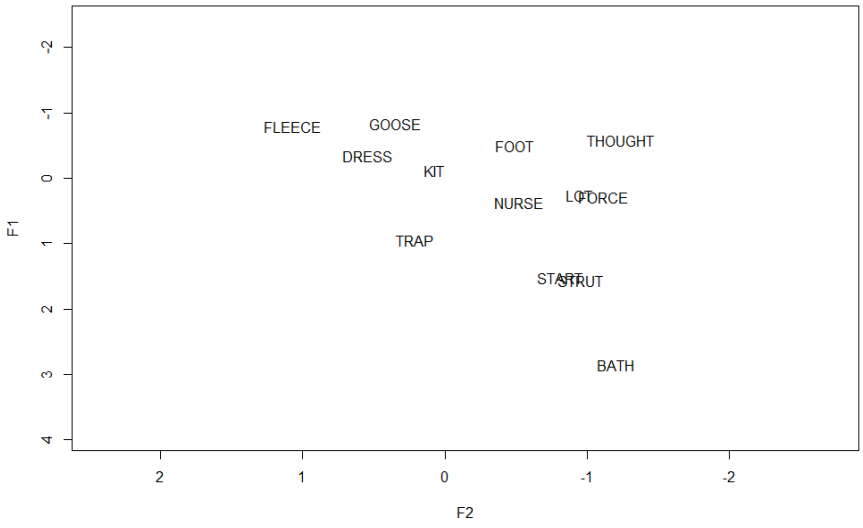


Figure 4. 42 Laila's English vowel space

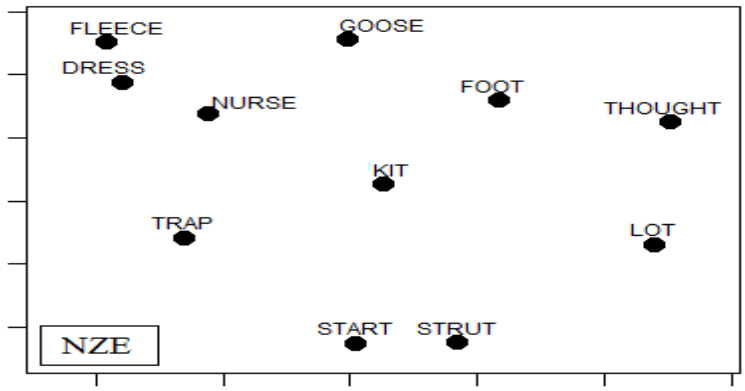


Figure 4. 43 NZE vowel space taken from (Gnevsheva, 2015)

Figure *4. 44 RP vowel space*

Laila's vowel space (Figure 4.42) is close to the prototypical NZE vowel space in (Figure 4.43). Many vowels are quite NZE-like: for example, TRAP is raised, KIT is centralized, DRESS is raised and fronted, GOOSE is fronted and LOT is raised and fronted. However, there is an overlap between Lailas' LOT and FORCE vowels, and they are back. There is also an overlap between START and STRUT; they are higher and more back compared to the NZE norm, and NURSE is centralised like in RP (Figure 4.44) rather than fronted as in the NZE norm.

To sum up, Laila's monophthongal vowel production was very close to native-like, with NZE-like production of many of the characteristic vowels, particularly the three short front vowels KIT, DRESS and TRAP, and there seem to be differences to NZE in some vowels but not others.

2- *Samera*

Samera is 18-year-old female native speaker of English and Arabic, who can be classed as an English L1 speaker. She came to New Zealand when she was two years old. She began her formal study of English at the age of four at a kindergarten. Over the last five years, she has visited Jordan every year for two months and lives with her grandparents and relatives who all speak Arabic with her. She reported using English everywhere in New Zealand except at home with her parents and sometimes with her brothers and sisters, when praying and with 1st generation people who speak Arabic with her. She participates in almost all Jordanian social gatherings and usually leads and organises the social gatherings, concerts, parties and Eid celebrations for Muslims.

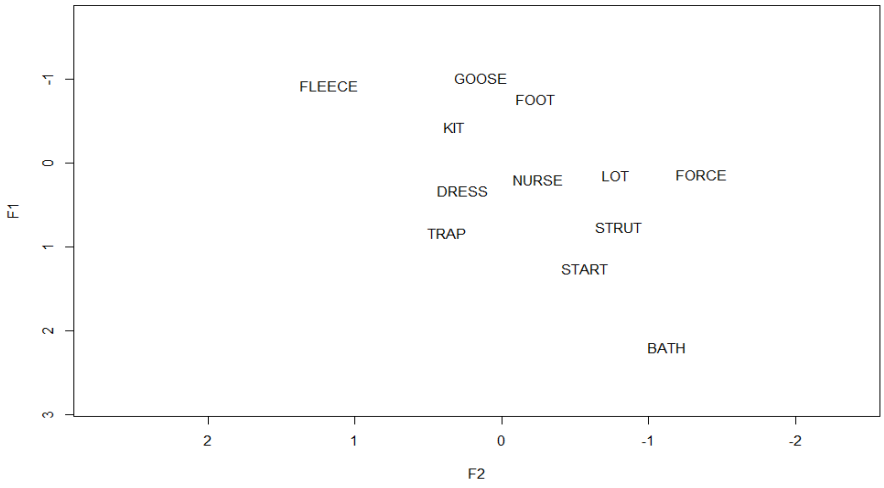


Figure 4. 45 Samera's English vowel space

The monophthongs produced by Samera (Figure 4.45) were pretty close to native-NZE like, the same as Laila. She produced raised TRAP, centralised KIT, GOOSE and FOOT are fronted and high and FLEECE is high like its NZE counterpart. The main difference was with DRESS, where she showed very small raise for this vowel compared to the NZE norm. Other differences to the NZE vowel space are that NURSE is centralised, START and STRUT are higher than the NZE norm, and LOT is higher and fronted compared to the NZE norm.

To sum up, Samera's monophthongal vowel production was pretty close to NZE native-like and similar to Laila. However, she differs from Laila in her production of DRESS as only slightly raised, even though she is from the same generation and younger than Laila. The difference in her production of the DRESS vowel might reflect that Jordanians commonly confuse the KIT-DRESS vowels and produce both as /e/ (Kalaldeh, 2016). A factor that seems important to mention here, is that Samera has visited Jordan regularly for the last 5 years and lives with her

grandparents and relatives and all of them speak Arabic with her, which may have affected her production of some vowels.

3- Anwar

Anwar is a 33-year-old male near-native speaker of English and native speaker of Arabic. He started learning English at school in his home country (Iraq) at the age of 11. He reported speaking both languages: Arabic with his parents, 1st generation people in New Zealand, and Arab friends in Arab countries, but English with his brothers and sisters, at work and with Arab and Kiwi friends in New Zealand. He is more comfortable speaking English. He came to NZ when he was 14 years old and began his formal study in English at school. Later, as an adult, he joined the University of Canterbury and studied engineering. According to my informal observation of Anwar at Jordanian community gatherings, Anwar often interacts with other Arab Jordanians in English, especially with friends and young people. He reported using English most of the time except with his parents, 1st generation people and when praying. He watches movies, YouTube and series in English. He claimed that he has a changeable identity: Arabic with Arabs and Kiwi with Kiwis. Moreover, Anwar, reported that most of the people told him that he speaks with a South African accent and mentioned that he doesn't like having an Arabic accent in his English but is okay with having English accent in his Arabic.

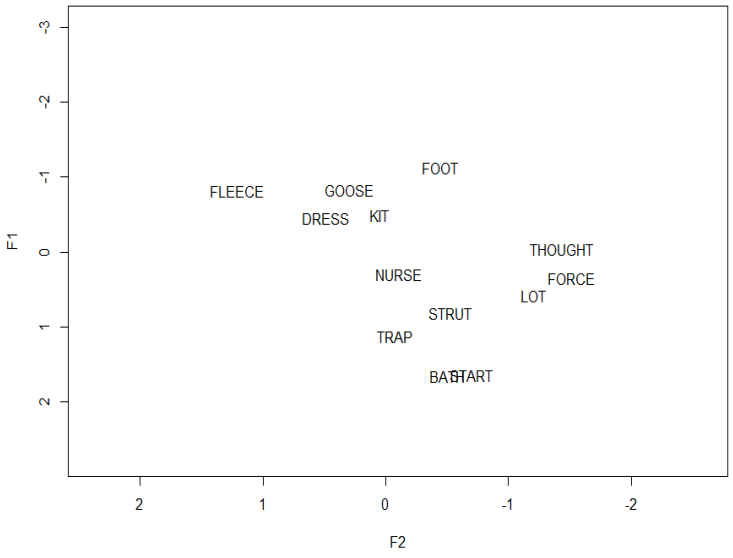


Figure 4. 46 Anwar's English vowel space

The monophthongs produced by Anwar were very close to native-NZE like (Figure 4.46). DRESS is raised, KIT is lower and close to the centre, TRAP is slightly raised and fronted, THOUGHT, FORCE and LOT are back, START is low FLEECE is raised, and GOOSE and FOOT are fronted like the NZE norm. On the other hand, some differences were also found, with NURSE centralised unlike the NZE norm, and STRUT higher than its NZE counterpart.

To sum up, we would not assume an L2 speaker to only alternate between two options of 'L1-ness' on the one hand and 'L2-ness' on the other. There are very possible intermediate forms. This result is clear in *Anwars'* vowels production though he claimed that he is a New Zealander and has been in the country for long time. It is clear that his production is not completely native-NZE like (see Figure 4.46). And this is what Za'rour (2018) confirmed in her thesis among Arabs in Wellington who found that young Arab migrants seem to hold an intermediate status between NS of NZE and first-generation Arab migrants. However, Anwar's monophthongal vowel production was very close to NZE native-like in the three short front vowels DRESS, KIT and TRAP produced like Laila.

4- *Adam*

Adam is a 30-year-old male native (L1) speaker of English and non-native speaker of Arabic. He was born in Kuwait in 1986. After two years he moved to the US with his parents who were pursuing their postgraduate studies there. He came to NZ when he was 9 years old. He started learning English before the age of five in the US. Later, as an adult, he studied at the University of Canterbury. He is a manager of his own software company. He visits Arab countries regularly for his business and secured some jobs from there. He got married to an Arab woman from Jordan. He reported speaking both languages: Arabic with his parents, 1st generation people in New Zealand, and Arab friends in Arab countries, but English with his brothers and sisters, at work and with Arab and Kiwi friends in New Zealand. He is more comfortable speaking English.

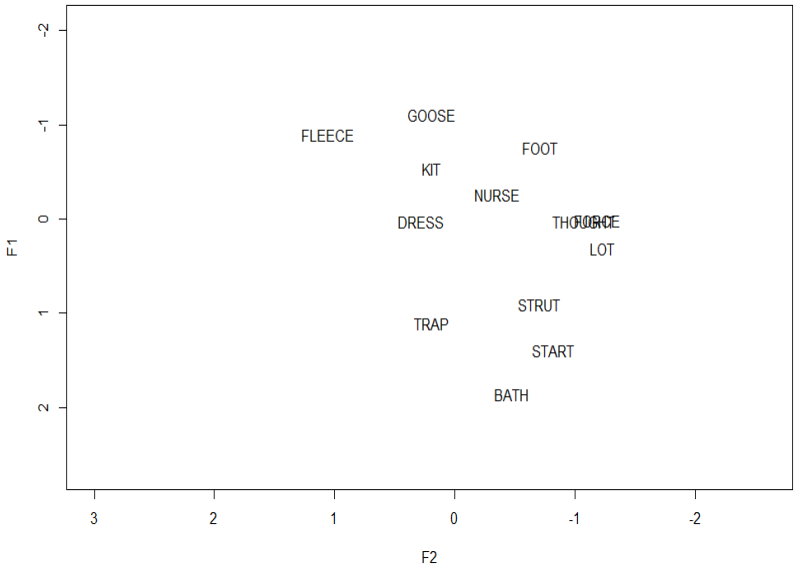


Figure 4. 47 Adam's English vowel space

The monophthongs produced by Adam are close to native-NZE like (see Figure 4.47). TRAP is slightly raised, KIT is lower, DRESS is slightly raised, GOOSE and FOOT are fronted and LOT is raised. However there are also some differences: NURSE is centralised rather than fronted, THOUGHT and FORCE overlap, and START and STRUT are higher than their NZE counterparts.

To sum up, Adam's monophthongal vowel production was close to native-NZE like, although there were differences found in his production of the DRESS, NURSE, THOUGHT, FORCE, START and STRUT vowels. Adam didn't show a clear shift for the DRESS vowel like Laila and Anwar, and this might reflect that Jordanians commonly confuse the KIT-DRESS vowels and produce both as /e/ (Kalaldeh, 2016). This difference might also reflect that Adam grew up in the States till he was 9 years old.

5- *Kamal*

Kamal is a 42-year-old male native speaker of Arabic and non-native (L2) speaker of English. He was born in Jordan. He started learning English at the age of eleven at school. He went to Qatar when he was young, to work there. He came to NZ when he was 30 years old. Later, as an adult, he studied at Lincoln University. He opened his own kitchen appliances company and runs it. He visits Arab countries regularly for business and to visit his family. He got married to an Arab New Zealander woman. He reported speaking Arabic most of the time except at work when he deals with non-Arabs. He is more comfortable speaking Arabic.

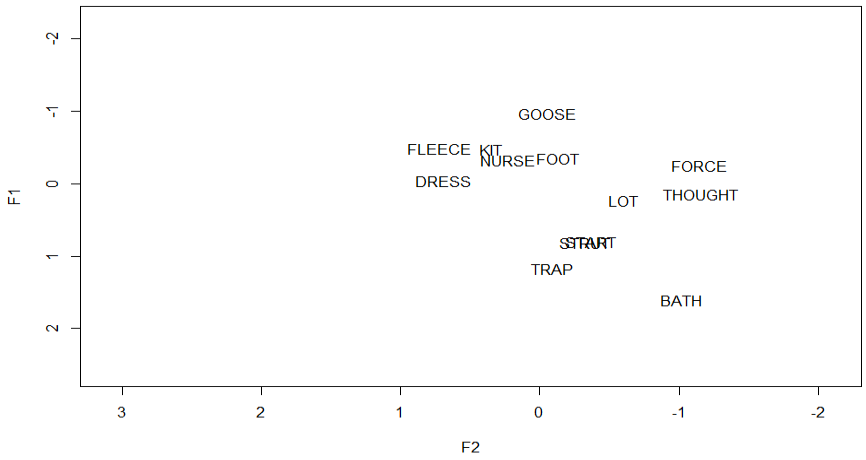


Figure 4. 48 Kamal's English vowel space

The monophthongs produced by Kamal (Figure 4.48) are less native-NZE-like compared to Anwar, Adam, Laila and Samera, and this is expected for a first generation speaker. GOOSE and FOOT are fronted, KIT is lower, DRESS is slightly raised and fronted, FORCE and THOUGHT are back, NURSE is fronted and FLEECE is high like its NZE counterpart. However, Kamal's TRAP is not raised and back, LOT is fronted, BATH is back, START and STRUT are overlapped and higher than their NZE counterparts.

To conclude, Kamal shows a shift in the production of DRESS and KIT vowels but, not in TRAP. This difference might be related to the fact that Kamal is a 1st generation speaker whose proficiency in English is lower than that of 1.5 and 2nd generation speakers and is likely to have affected his production of the NZE vowels.

6- *Ward*

Ward is a 34-year-old male native speaker of Arabic and non-native (L2) speaker of English. He was born in Jordan. He came to NZ when he was 32 years old. He started learning English at the age of eleven at school. Later, as an adult, he started working as a barber in Jordan. He is married to an Arab woman from Jordan and has four children. He reported speaking Arabic all of the time with his children at home and with his Arab friends, except at work when he deals with non-Arabs. He is more comfortable speaking Arabic.

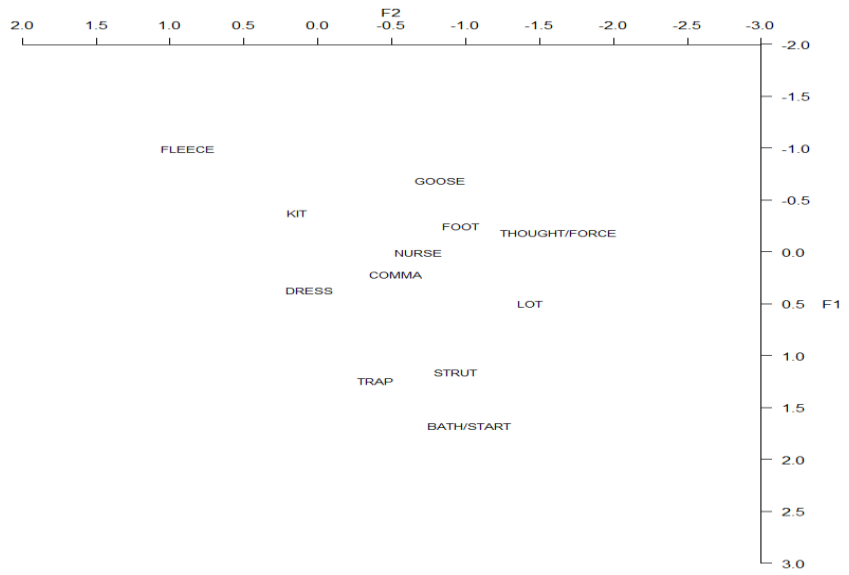


Figure 4. 49 Ward's English vowel space

The monophthongs produced by Ward (Figure 4.49) are less native NZE-like compared to Anwar, Adam, Laila and Samera. KIT is slightly lower, TRAP not raised, DRESS is slightly raised, GOOSE and FOOT are fronted like the NZE ideal, THOUGHT, FORCE and LOT are back like the NZE ideal, BATH and START are low and centralised like the NZE ideal, but STRUT is slightly higher, and NURSE is centralised unlike in NZE. While KIT and DRESS showed a very slight shift towards NZE, TRAP didn't.

To sum up, differences were found between speakers according to their generations. 2nd generation speakers *Laila and Samera* were native-NZE like in their productions of the three short front vowels. TRAP and DRESS were raised (less with Samera) and KIT was centralised. 1.5 generation speakers also showed vowel shift and they were very close to 2nd generation speakers in their production of the three short front vowels. The 1st generation they showed the lowest amount of vowel shift: DRESS and KIT were very slightly raised, but TRAP didn't show any shift. Moreover, the analysis also revealed inter-speaker differences within the generations: *Laila* had more native-NZE like realisations than *Samera*. *Anwar* produced more native-NZE like vowels than *Adam*, and *Ward* exhibited more NZE features than *Kamal*. *Laila* and *Anwar* had the most centralised KIT and raised DRESS. *Laila* and *Samera* exhibited the most raised TRAP. The next section discusses the use of the three NZE short front vowels across the three generations (1st, 1.5 and 2nd) and genders (males vs. females) in more detail.

4.2.3.2 Uses across generations and genders for the NZE vowels

Figures 4.50 and 4.51 illustrate the shift in TRAP, DRESS and KIT across the three generations for male and female speakers, respectively. The three generations are represented by different colours in the vowel quadrilaterals.

As can be seen from Figure 4.50, the TRAP vowel is slightly raised across the three generations of males and fronted compared to the NZE counterpart. It is clear that the TRAP vowel is raised and back more in the 2nd generation males than in the 1st and 1.5 generations. 2nd generation speakers showed less raising and fronting DRESS than the NZE ideal. The other two generations showed more raising of the DRESS vowel and their productions somehow slightly higher in the 1.5 generation than the 1st generation.. The three generations of males showed lower KIT in their speech. However, KIT was lower and more centralised for 1.5 and 2nd generations than for the 1st generation.

Figure 4.51 suggests that 2nd generation females did employ the raised and fronted form of TRAP vowel more than 2nd generation males who showed low and back TRAP. 1.5 and 2nd generation females showed overlapped TRAP. 1.5 and 1st generation overlapped in their use of the raised variant of DRESS, which was slightly higher for the 2nd generation than the first. Importantly the 2nd generation males and females' DRESS was low compared to other two generations. Turning to the KIT vowel, unlike the 1st generation, the 1.5 and 2nd generations exhibit the characteristic NZE centralization of this vowel. 1st generation speakers of both genders use neither a typical British English variant nor a NZE one .

To sum up, there are very slight differences between the two genders and the three generations in their production of the NZE vowels. For example, the TRAP vowels of 1.5 and 2nd generation females overlap, there is lack of distinction in DRESS between the 1st and 1.5 generation females and males, KIT is low in both genders and higher for 1st generation speakers. The similarities and the vowel shifts at the same time are clear in both genders: the KIT vowel is low and close to the centre among 1.5 and 2nd generations, the DRESS vowel is slightly raised and fronted among 1st and 1.5 generation and the TRAP vowel is also somewhat raised among 1.5 and 2nd generations.

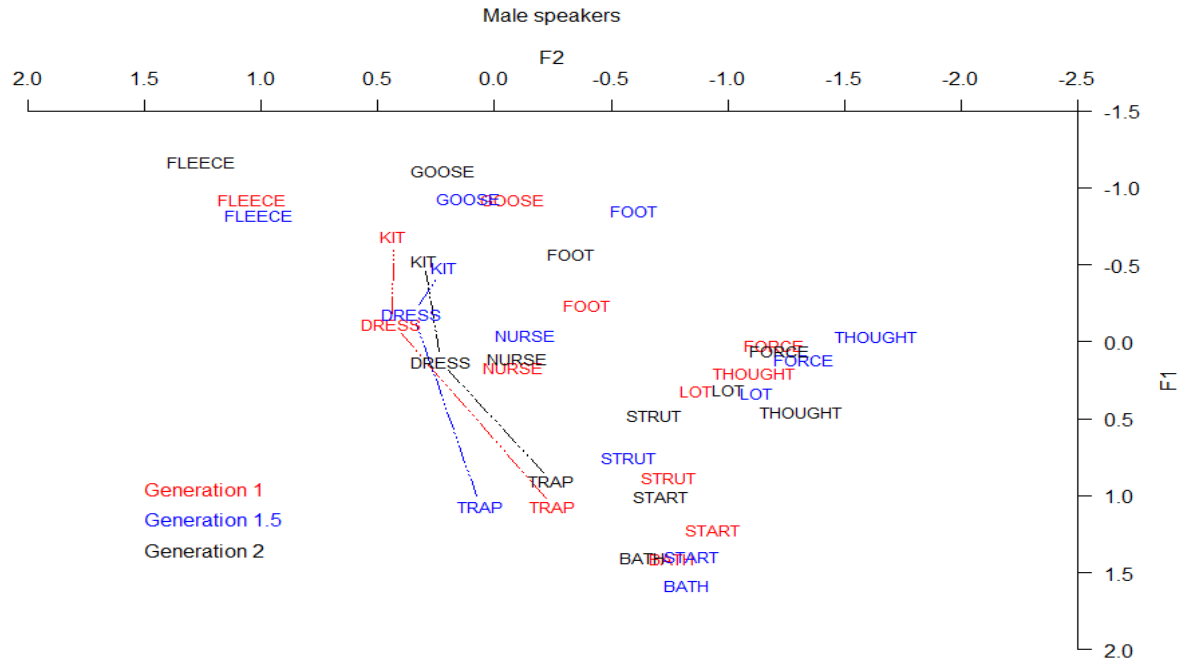


Figure 4. 50 Vowel uses by males across generations

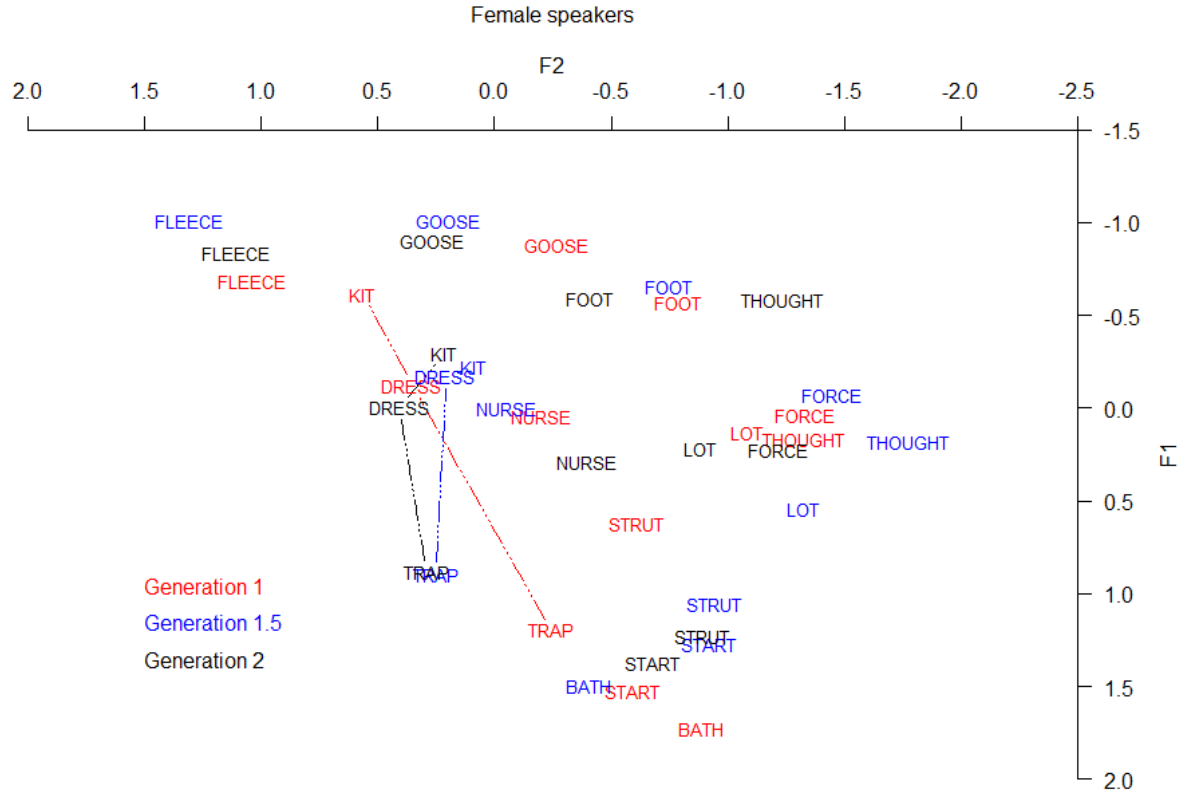


Figure 4. 51 Vowel uses by females across generations

4.2.3.3 Discussion

Many researchers hypothesized that L1 Arabic transfer affects the pronunciation of the English L2 (Al-Saidat, 2010; Albirini, 2016; Elmahdi & Khan, 2015; Kalaldeh, 2016; Odlin, 1989). Jordanians commonly confuse the KIT-DRESS vowels producing both as /e/ (see Kalaldeh, 2016). Furthermore, we should take into consideration that adults find acquisition of the 2nd language more difficult than children do and that they probably will not achieve native-like proficiency (Kalaldeh, 2016).

Laila's vowel space is more native-NZE-like than others, suggesting that some of *Lailas'* vowels were already moving in the direction of the modern NZE vowel space. This might be due to the rare visits to the Arab countries compared to the other speakers who visits Arab countries regularly. But, at the same time, we can notice that all the other five speakers mentioned above tend to produce somehow centralised KIT which is "a defining feature of the New Zealand accent, and even of national identity" (Bell, 1997, p. 244).

In the 1.5 and 2nd generations, KIT is always more lowered than in the 1st generation, and TRAP is higher in the 1.5 and 2nd generations than in the 1st generation. Interestingly, the 2nd generation DRESS was less raised than the realisations produced by 1st and 1.5 generations. This result/movement is opposite to the expected influence. Both genders produced less NZE-like DRESS than the 1st and 1.5 generations. One possible reason for this result is that the second generation males were born in New Zealand but left the country at the age two and four and then came back to New Zealand at the age of 16 and 17. At the time of the interview they were 18 and 21 years old. One of the speakers, Mahmoud (21 years old), was fluent in English but wasn't interested in speaking NZE and said in the interview that the New Zealand accent is a bit difficult for strangers to understand, so he didn't see any reason for wanting it:

> For the most part I don't have the New Zealand accent. So can I change my accent to a New Zealand accent? I don't think so, uhm what I have is mix between British - American English or accent, but I don't think I can actually stick to one accent or change it. I don't care about changing it also, as long as it is easy to understand for the person in front of me I don't think it matters too much.

The other 2nd generation male speaker *Hamed* was not fluent in English, although he had acquired some of the NZE features. *Hamed* showed interest in speaking NZE, but couldn't speak it fluently:

"So they can tell from my accent anyway they can tell I am not a Kiwi".

In addition, *Samera* the second generation female speaker stated that her accent is American more than New Zealand although she came to the country when she was 2 years old. *Samera* travels to Jordan every year for 2 months and lives with her grandparents. she speaks Arabic in her home in NZ, especially with her parents. She has a strong Arabic identity and interest in the Arabic culture:

"Definitely Arab yeah… Uhm most people say I sound American".

In conclusion, these small differences among the three generations and two genders might be explained in light of the speakers' attitudes and identities, which will be discussed further in section 5.2.4.

After careful examination of individual vowel spaces and comparisons between the generations, I performed statistical analyses on the data to discover the influence of the social factors on the English vowel productions of Jordanian immigrants, using mixed effects model in R. I examined the F1 and F2 for KIT, DRESS and TRAP vowels because they are convenient in indicating a speaker of NZE (Warren, 2018). The results of the statistical analyses are discussed in Section 4.2.3.4.

4.2.3.4 Statistical results and discussion

This section uses statistical analyses to test whether the observed differences in this and other vowels were significant. In order to do this, linear-mixed effects models were fit to my data, with the normalized formant values of the vowels of interest as dependent variables. Low vowels have high F1 and high vowels have low F1 values. The full model included an interaction between generation and gender, as well as following phonological environment, frequency, PC1 and PC2 as fixed effects, with word and speaker as random intercepts. Significant effects were found for DRESS F1, TRAP F1, TRAP F2, KIT F1 and KIT F2. Variation

in DRESS F2 for all the factors did not reach significance; no significant correlations between the fixed effects were found in any of the models. In the next sections the final models and the results for DRESS F1, TRAP F1, TRAP F2, KIT F1 and KIT F2 will be presented.

4.2.3.4.1 Dress F1

Table 4.7 presents the final model for DRESS F1. *Phonological environment*, was in the model in the analysis, but I am not showing it, since it was used as a control. The *estimate* and the *standard error* columns in the table provide the predicted normalized F1 for the vowel and standard error for a particular level. For the intercept (level *generation 1.5 and gender female* of the factor *generation and gender* and the base levels of other variables, such as phonological environment and word frequency), the predicted normalized value is 0.12664. This model shows an interaction between generation with gender and generation with PC1 and PC2.

m2 <- lmer(F1n ~ generation*(gender+PC1+PC2)+fol.environment+(1|Speaker)+(1|word),DRESS, REML=F)

	Estimate	Std. Error	df	t value	Pr(>|t|)	
Intercept	0.12664	0.14273	35.19748	0.887	0.380943	
generationgen1	-0.34517	0.16665	30.53186	-2.071	0.046883	*
Generationgen2	-0.01929	0.26610	60.54032	-0.072	0.942445	
Genderm	0.83701	0.28915	19.27998	2.895	0.009190	**
PC1	-0.08475	0.06904	17.81045	-1.228	0.235575	
PC2	1.01136	0.26783	16.19425	3.776	0.001624	**
generationgen1:genderm	-0.75589	0.30139	19.82561	-2.508	0.020956	*
generationgen2:genderm	-0.96247	0.32155	19.70803	-2.993	0.007265	**
generationgen1:PC1	0.01957	0.09781	20.46630	0.200	0.843367	
generationgen2:PC1	-0.99030	0.25194	25.33000	-3.931	0.000581	***
generationgen1:PC2	-0.86575	0.28234	17.44073	-3.066	0.006836	**
generationgen2:PC2	-1.69914	0.35337	22.19278	-4.808	8.21e-05	***

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 7 Model summary for the final model predicting the use of DRESS F1

The vowel plots seemed to suggest in the top left graph in Figure 4.52 that 2nd generation males and females produced lower DRESS (high F1) than the other generations (less NZE like). Moreover, the model in the top right graph in Figure 4.52 shows an interaction between the 2nd generation and PC1; the participants who showed negative attitudes towards Arabic (high PC1 scores) produced high DRESS (low F1). Furthermore, the model in the bottom left graph in Figure 4.52 shows an interaction between generation and PC2, such that participants in the 1st generation showed positive attitudes towards English with high DRESS (low F1). 2nd generation speakers showed negative attitudes towards English with high DRESS (low F1) and low DRESS

with positive attitudes (not NZE-like). However, 1.5 generation is the only one who showed the expected result; the speakers produced high DRESS (low F1) with positive attitudes towards PC2, which is more NZE like production.

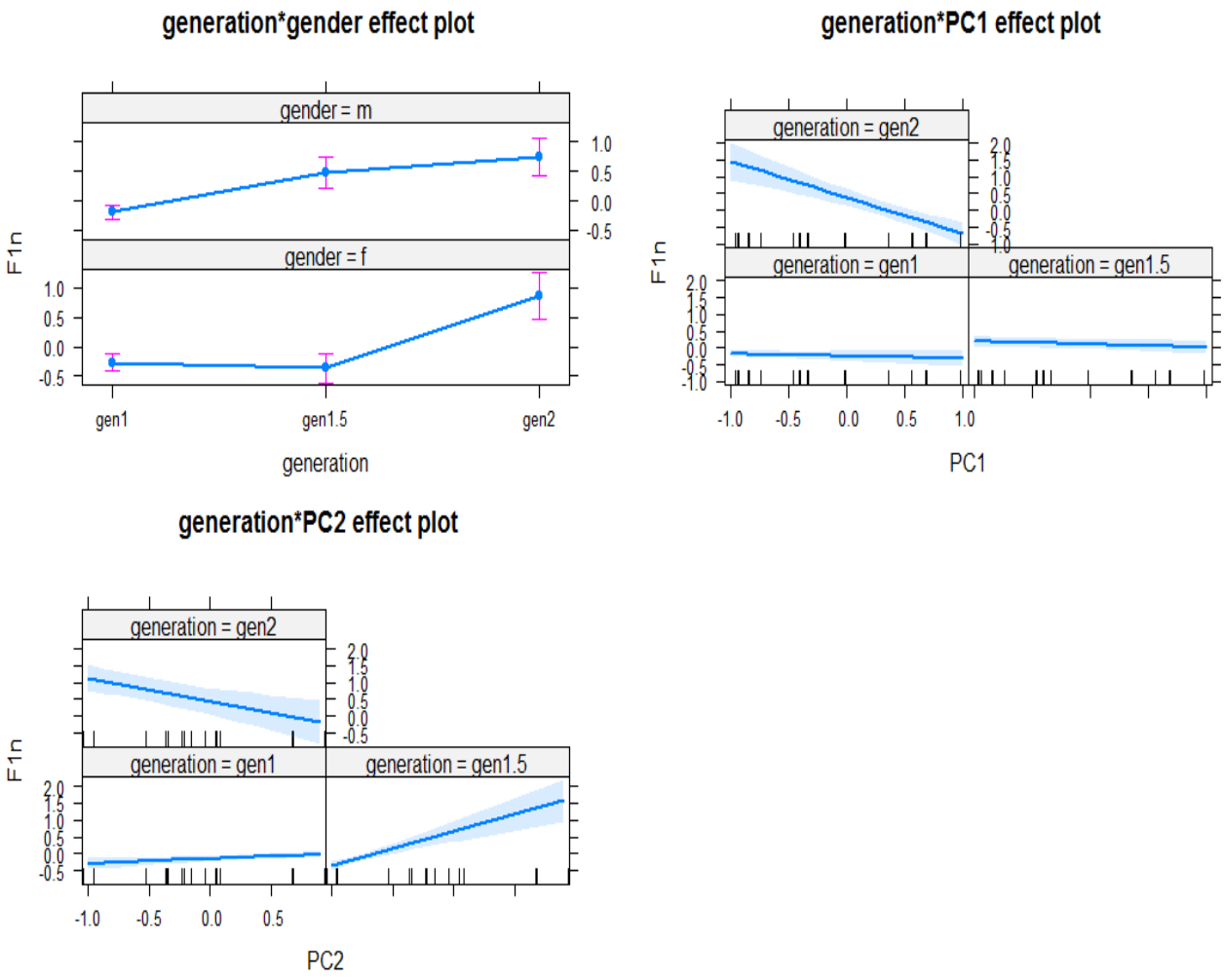


Figure 4. 52 Mean normalized F1 for DRESS by generation, PC1 and PC2

4.2.3.4.2 TRAP F1

Table 4.8 represents the final model for TRAP F1. For the intercept (level *gender female* of the factor *gender* and the base levels of other variables, such as phonological environment and word frequency), the predicted normalized value is 1.11183. The model shows a significant effect for the interaction between gender and logfreq (p-value 0.0350). PC1 and PC2 were not significant, so they were removed from the model

Figure 4.53 shows a significant difference between males and females with logfreq and both males and females are more likely to produce high TRAP (low F1) with high frequency words, which means more like NZE. And low TRAP with low frequency words and the slop is more in males than females.The estimate value shows a negative effect for the interaction between genderM and word frequency (-0.04633). This result reflects my expectations that speakers will have higher TRAP (= lower F1) with high frequency words and lower TRAP with low frequency words.

m8 <- lmer(F1n ~ gender*logfreq+(1|Speaker)+(1|word),TRAP, REML=F)

	Estimate	Std. Error	df	t value	Pr(>|t|)	
Intercept	1.11183	0.13790	81.63605	8.063	5.39e-12	***
Genderm	0.30987	0.17349	56.66132	1.786	0.0794	.
Logfreq	-0.03874	0.02497	65.26860	-1.552	0.1255	
genderm:logfreq	-0.04633	0.02195	1531.42961	-2.110	0.0350	*

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 8 Model summary for the final model predicting the use of TRAP F1

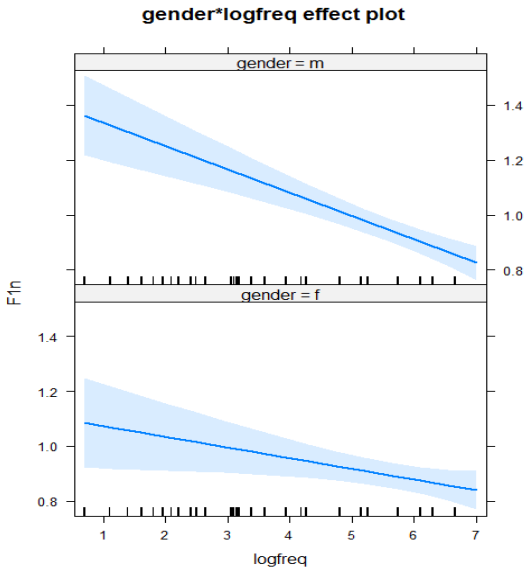


Figure 4. 53 Mean normalized F1 for TRAP by gender and log-frequency

4.2.3.4.3 TRAP F2

Table 4.9 represents the final model for TRAP F2. For the intercept (level *generation 1.5 and gender female* of the factor *generation and gender* and the base levels of other variables, such as phonological environment and word frequency), the predicted normalized value is 0.63061. This model shows an interaction between generation with gender and generation with PC1 and frequency. PC2 was not significant, so it was removed from the model

m11 <- lmer(F2n ~ generation*(gender+PC1+logfreq)+fol.environment+(1|Speaker)+(1|word),TRAP, REML=F)

Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(>|t|)	
(Intercept)	0.63061	0.29108	646.8768	2.166	0.03064	*
generationgen1	-0.23057	0.1583	33.78034	-1.457	0.15448	
generationgen2	0.68683	0.21246	36.845	3.233	0.00259	**
genderm	-0.26644	0.13049	20.37099	-2.042	0.05434	.
PC1	-0.19464	0.07326	18.79848	-2.657	0.01567	*
logfreq	0.03725	0.01323	2076.34746	2.815	0.00492	**
generationgen1:genderm	0.26445	0.14995	20.27867	1.764	0.09287	.
generationgen2:genderm	-0.39159	0.19552	19.78573	-2.003	0.05909	.
generationgen1:PC1	0.20005	0.10006	19.52115	1.999	0.0597	.
generationgen2:PC1	-0.17589	0.15933	20.22984	-1.104	0.28259	
generationgen1:logfreq	-0.03899	0.01373	2080.43817	-2.839	0.00458	**
generationgen2:logfreq	-0.05974	0.01913	2071.36898	-3.123	0.00182	**

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 9 Model summary for the final model predicting the use of TRAP F2

The vowel plots seemed to suggest in the top graph in Figure 4.54 that 2nd generation males produced back TRAP compared to 1.5 and 2nd generation females who produced front TRAP. Females produced more NZE like TRAP than males. Moreover, the model in the bottom left graph in Figure 4.54 shows an interaction between the 1st generation and PC1, the participants has backer TRAP regardless of PC1 score. While, 1.5 and 2nd generations have frontier TRAP with positive attitudes towards PC1 (more NZE like). Furthermore, the model in the bottom right graph in Figure 4.54 shows an interaction between generation and logfreq, such that participants in the 1st generation has backer TRAP regardless of frequency, 1.5 generation has frontier TRAP with high frequency (more NZE like) and 2nd generation speakers has more front TRAP with low frequency.

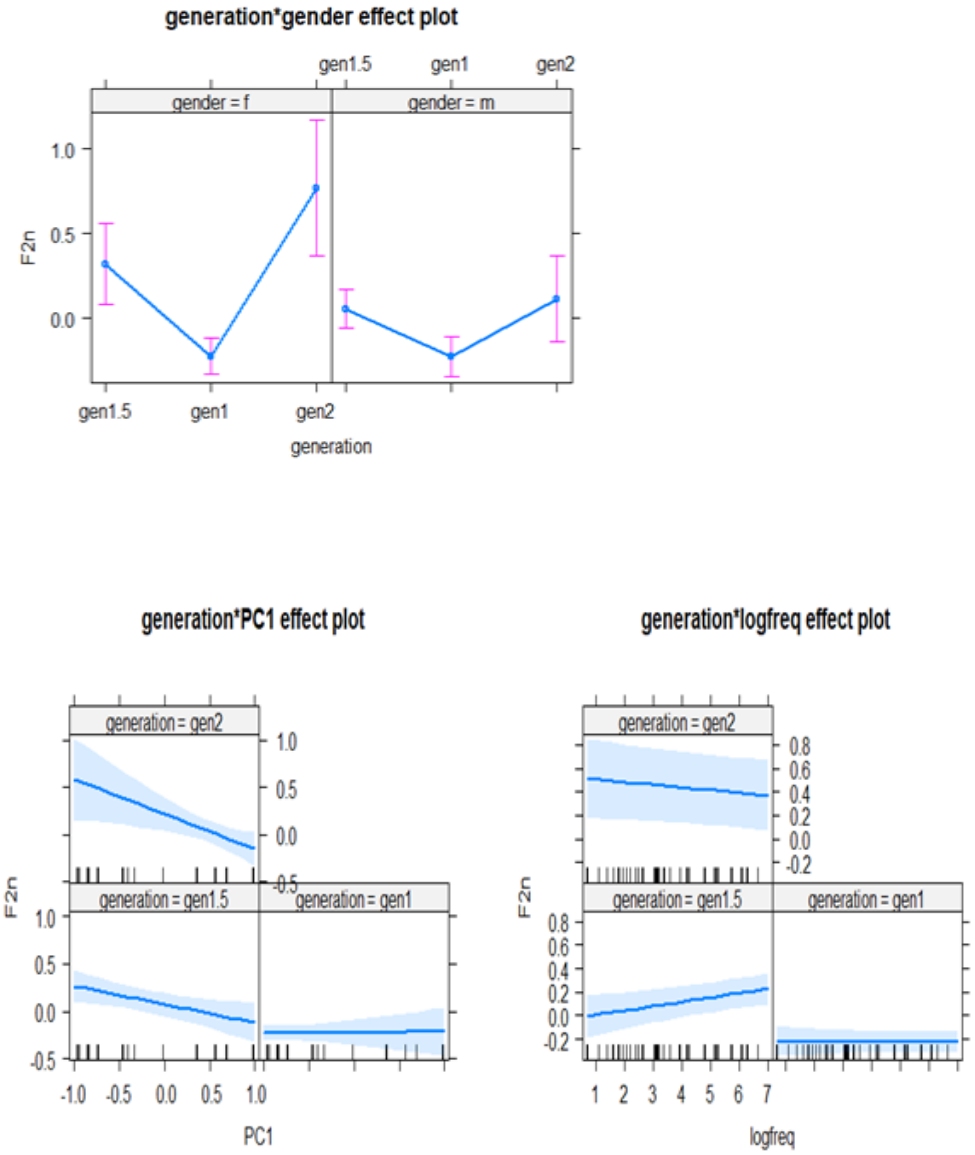


Figure 4. 54 Mean normalized F2 for TRAP F2 by generation and log-frequency

4.2.3.4.4 KIT F1

Table 4.10 represents the final model for KIT F1. For the intercept (level *gender female* of the factor *gender* and the base levels of other variables, such as phonological environment and word frequency), the predicted normalized value is -0.58133. The model shows a significant effect for the interaction between gender male and logfreq (p-value 0.020). PC1 and PC2 were not significant, so they were removed from the model.

Figure 4.55 shows that males and females are more likely to produce lower KIT (high F1), but males with low frequency words, and females with high frequency words.

m14 <- lmer(F1n ~ gender*generation+logfreq+fol.environment+(1|Speaker)+(1|word),KIT, REML=F)

	Estimate	Std. Error	df	t value	Pr(>|t|)	
Intercept	-0.58133	0.08587	124.29506	-6.770	4.56e-10	***
genderm	0.06776	0.10528	81.61591	0.644	0.522	
logfreq	0.02285	0.01601	73.57875	1.427	0.158	
genderm:logfreq	-0.03155	0.01355	1963.70507	2.328	0.020	*

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 10 shows the model summary for the final model predicting the use of KIT F1

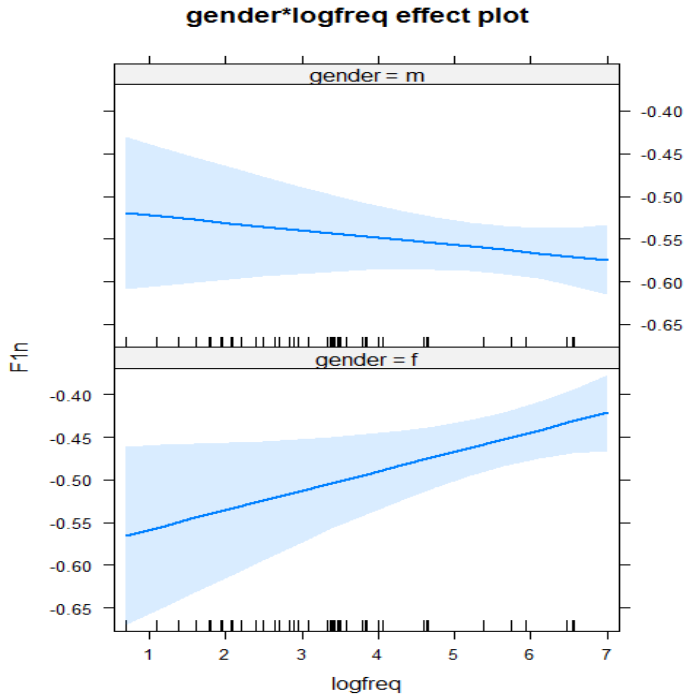


Figure 4. 55 Mean normalized F1 for KIT by gender and log-frequency

4.2.3.4.5 KIT F2

Table 4.11 represents the final model for KIT F2. For the intercept (level *generation 1.5 and gender female* of the factor *generation and gender* and the base levels of other variables, such as phonological environment and word frequency), the predicted normalized value is 0.09669. The model shows a significant effect for the interaction between generation and PC2 (p-value 0.018931).

Figure 4.56 shows that 2nd generation produced back KIT with negative attitudes toward PC2. While 1.5 generation produced back KIT with positive attitudes towards PC2. As a result both 1.5 and 2nd generation produced more NZE like KIT.

m15 <- lmer(F2n ~ generation*(gender+PC1+PC2+logfreq)+fol.environment+(1|Speaker)+(1|word),KIT, REML=F)

Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(>|t|)	
(Intercept)	0.09669	0.18334	43.96004	0.527	0.600591	
generationgen1	0.30989	0.1778	23.10042	1.743	0.094645	.
generationgen2	-0.30656	0.24865	24.36156	-1.233	0.229371	
genderm	0.62833	0.31145	14.40279	2.017	0.062683	.
PC1	0.04756	0.07456	13.07586	0.638	0.534568	
PC2	0.49132	0.30369	14.73744	1.618	0.126902	
logfreq	0.01355	0.01967	69.21115	0.689	0.493067	
generationgen1:genderm	-0.63702	0.32145	14.4501	-1.982	0.066864	.
generationgen2:genderm	-0.41867	0.34512	14.31527	-1.213	0.244729	
generationgen1:PC1	-0.10114	0.10338	13.94166	-0.978	0.344595	
generationgen2:PC1	-0.28199	0.26432	15.89944	-1.067	0.301969	
generationgen1:PC2	-0.49515	0.31427	14.86398	-1.576	0.13617	
generationgen2:PC2	-0.98579	0.37533	15.17322	-2.626	0.018931	*
generationgen1:logfreq	-0.01321	0.0147	1879.84402	-0.899	0.368926	
generationgen2:logfreq	-0.01488	0.02037	1943.22718	-0.73	0.465248	

Note. * p<0.05; ** p<0.01, *** p<0.001

Table 4. 11 shows the model summary for the final model predicting the use of KIT F2

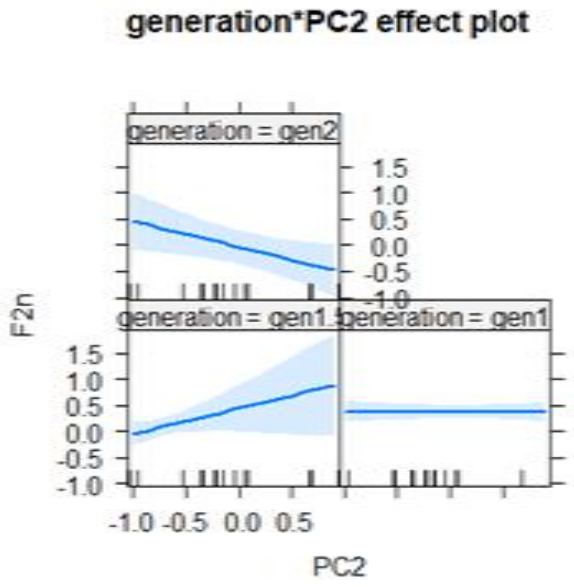


Figure 4. 56 Mean normalized F2 for KIT by generation and PC2

Chapter 5: General Discussion

Chapter five consists of two parts. The first part discusses the questionnaire results in LMLS. The second part discusses the results for my two research questions about the consonants and two research questions about the three NZE short front vowels KIT, DRESS and TRAP, and their correlations with the social factors. I provide a qualitative discussion of the significant results from the quantitative analysis for both the ING and the vowels and extracts information from the interviews to help explain the attitude results and check if they match and predict linguistic behavior. I also look at the links between speakers' linguistic behavior and the quantitative attitudinal scores, by focusing on their instrumental and integrative attitudes and positive or negative attitudes towards English. The chapter concludes with a discussion of the relationship between the significant attitudinal results for the variable ING and Identity (indexicality).

5.1 Discussion of the questionnaire results

The questionnaire part of this thesis formed the basis of a quantitative analysis of the Christchurch Jordanians' language proficiency, use and attitudes. I explaine the LMLS situation and evaluate the significance of various demographic factors. The analysis produced a number of findings, which shed light on the following 3 research questions:

1. What are the Jordanians' self-reported language proficiencies in English and their ethnic language/s? And what is the effect of demographic factors on that?
2. What are the patterns of language use in different domains? And what is the effect of demographic factors on that?
3. What are the attitudes of Jordanians towards both Arabic and English languages, identities and cultures? And what is the effect of demographic factors on that?

5.1.1 Question One

1. What are the Jordanians' self-reported language proficiencies in English and their ethnic language/s? And what is the effect of demographic factors on that?

There appears to be a decline in ethnic language proficiency, especially in literacy, among participants who came to New Zealand at an early age (i.e., 1.5 & 2nd generations) and those who have been in the country for a long time such as (11-20 years and 21-30 years). This could be due Arabic being taught only in a mosque that seems to focus on Quranic Arabic, which

provides limited opportunities for people to improve their literacy skills. According to the literature, formal education (e.g., schools) and government interests in ethnic languages have proved to play an important role in maintaining ethnic languages in New Zealand and worldwide (see Al-Sahafi & Barkhuizen, 2006; Othman, 2011; Tawalbeh, 2017). Al-Sahafi and Barkhuizen (2006) proposed that Arabic proficiency can be developed among the younger Arab generation in Auckland by arranging formal Arabic education and Arabic media use to support families' efforts to maintain Arabic. As Tawalbeh (2017) points out, "when language is not used in media, education, or receives no government support, it is less likely to be maintained" (p. 25). Othman (2011) notes that:

> Attending English school may also influence ability in Arabic. Children acquire Arabic at home before they acquire English. Thus, in the prior-English-school stage, children are almost Arabic-monolinguals. Those Arabic monolinguals start to turn into Arabic-English bilinguals in the English-school stage. With the passage of time, this might affect their Arabic ability, especially with regard to literacy, since they read and write in English more than they do in Arabic as they attend English schools much more than they attend Arabic schools which they go to outside of school hours. Thus, it can be said that ability in English sometimes affects negatively ability in Arabic, specifically literacy, in the child generation. This view was emphasized also in the interviews and focus groups (pp. 199-200).

Holmes (2001) stated that in countries like New Zealand, immigrant children are exposed to the dominant language English through English-language schools and television programs that allow English to gradually spread in the home through children.

Another important reason for the decline in Arabic language proficiency might be the dominance of the English language in Christchurch which might motivate them to learn English quickly, at the expense of their ethnic language, in order to integrate into New Zealand (Al-Sahafi, 2010; Holmes, 2001; Tawalbeh, 2017). Without genuine government support for Arabic language learning in New Zealand, the Jordanian community is not likely to achieve higher levels of oral proficiency and literacy in their ethnic language. And because Arabic is a minority language in Christchurch and very limited informal opportunities are available for learning it (mainly the mosque and the home), this results in restricting its use to specific domains and decreases the Jordanian's ethnic language proficiency.

Arabic is the language most 1st generation and 1-10 years LoR participants learned at schools in Jordan or other Arab countries, and therefore they reported higher proficiency in oral and literacy skills of this language. Jordanians reported high Arabic oral proficiency with comparatively small differences across generations and LoR. 1.5 and 2nd generations and 11-20 years LoR reported that they were *very good* and *good* in Arabic oral skills, while 1st generation and 1-10 years LoR participants reported their Arabic orals skills as *excellent*.

1.5 and 2nd generation participants and those who have been in the country from 11-20 and 21-30 years reported higher proficiency English oral and literacy skills than 1st generation and 1-10 years participants. These self-assessments are supported by my own informal observations, where on different occasions, I have seen these participants interact in English with Kiwi friends. Most of the younger generation and long-term residents studied at NZ schools and NZ universities and they have Kiwi colleagues who they interact and communicate with frequently. This is likely to have contributed to their proficiency in English, together with the dominance of English in Christchurch and the strong government support for teaching the English language to migrants.

5.1.2 Question Two

2. What are the patterns of language use in different domains? And what is the effect of demographic factors on that?

The Jordanian participants in the survey reported significant use of Arabic and English in the home domain. Both Arabic and English languages were frequently used at home among 1.5 and 2nd generations and among those who have been in the country between 11-20 and 21-30 years. This may be an indication of the bilingualism that these participants have reached. My informal observations confirm that the motivation for Jordanians to use both languages at home might relate to the issue that most of the Jordanian immigrants in Christchurch are still very new in the country. Many are students and have plans to go back to their home countries in the future, so they value that their children are able to speak both languages. Several Jordanians commented on the advantages of bilingualism for getting excellent job opportunities in the Arabic region. In addition, some of them value getting married to Arab people to maintain their heritage language and that's why they encourage their children to learn & use Arabic at home so they will have the necessary language skills to marry an Arabic speaker.

The survey results point to bilingualism among 1.5 and 2nd generations and among participants with 11-20y and 21-30y LoR. They also suggest that a gradual language shift towards English is taking place in the home domain among both 1.5 and 2nd generations, compared to ethnic language maintenance among the 1st generation and 1-10 years LoR participants. Among 2nd generation participants, in particular, we see a gradual increase in the dominant language use when talking to siblings. These results go hand in hand with Tawalbeh (2017), who found the home to be a very important domain for Arabic language maintenance among Iraqis, and also observed a gradual decrease in ethnic language use when talking to siblings, as he moved towards the younger age groups.

The results of my analysis highlight the significance of the home domain for Arabic language maintenance, as the Arabic language is frequently used there, particularly by 1st generation and 1-10 years LoR (see section 4.1.2.1). The high reported use of Arabic at home by 1st generation and those who have been in the country for 1-10 years is a positive sign for the maintenance of Arabic (see Al-Sahafi, 2010; Tawalbeh, 2017) and may indicate the intention of Jordanian families to maintain the home as a place for ethnic language use.

The results also suggest that the Arabic language is still used in the friendship domain, particularly when Jordanians speak to each other, while both Arabic and English are used when writing text messages and in the presence of non-Arabs in the conversation (see Dweik, 1980; Tawalbeh, 2017). However, significant differences exist in different generations and LoR. The use of Arabic language in the friendship domain demonstrated the maintenance of Arabic in the 1st generation and the shift of Arabic in the 2nd generation. The results showed that the use of Arabic in the friendship domain was valued by 1st generation and 1-10 years LoR participants, especially when interacting with Arab friends and interact with each other. However, the younger generations (1.5 and 2nd) and 11-20 and 21-30 years LoR participants depend heavily on English in this domain when writing text messages and in the presence of non-Arabs in the conversation (see section 4.1.2.2). English seems to be more favored in this domain as age at arrival decreases and LoR increases. This may suggest a decline in Arabic language proficiency and a shift towards English among those participants. Dweik (1980) reports that the Yemeni participants in his study pointed out that the place of interaction between friends had an impact on the outcome of the choice of language. He also found that the Arabic language was often used among the Yemeni sample, but not in the Lebanese Christian sample.

My results provide further evidence for the significance of religion as a domain where Arabic (includes both colloquial and Standard Arabic) language is frequently used. The religious

function of Arabic constitutes an important motive for Jordanians to use it in the religion domain. The high reported use of the ethnic language in religious contexts is a positive sign for the maintenance of Arabic in this domain (Al-Sahafi & Barkhuizen, 2006; Dweik, 1980; Othman, 2006; Tawalbeh, 2017).

In the domain of religion, all Jordanians used *only Arabic* when praying. This is because praying must be performed in Arabic. However, variation between generations were found in other aspects of language use in the religious domain. For example, 1st generation participants reported using *only Arabic* when communicating with other Arabs in the mosque, while 1.5 and 2nd generations use both *Arabic and English* when talking to Arab friends in the mosque. There is also a greater perception amongst 2nd generation participants that English is used in the Friday ceremony. This result might be related to their English language proficiency and to a change in their perception of Arabic (Dweik, 1980).

5.1.3 Question Three

3. What are the attitudes of Jordanians towards both Arabic and English languages, identities and cultures? And what is the effect of demographic factors on that?

The results showed general positive attitudes towards Arabic language maintenance as well as learning English (Dweik, 1980; Othman, 2011; Tawalbeh, 2017). Othman (2011) reports that parents often have a positive attitude towards bilingualism, as is illustrated by this quote from one of his participants:

> it is an advantage; it is an exercise for the brain; it provides more work opportunities; we live in Britain, so we should mingle with the community; it helps know more cultures and mingle with people; here (in Britain) it is a necessity (p. 205).

Positive attitudes towards the importance of ethnic language learning, using Arabic, and maintaining it were found across generations and LoR groups. This result might be related to the frequent use of Arabic by parents in different domains, which had a positive influence on their children's attitudes towards the importance of learning and maintaining the Arabic language (Al-Sahafi, 2010). The participants' attitudes towards Arabic maintenance showed that they consider Arabic to be a 'core value' (Smolicz, 1981) that is vital to their survival. However, a move away from the idea of improving Arabic language skills to succeed the professional life was found among the 2nd generation participants, who not considered it a core

value and not useful in their professional life. The 1.5 generation and 11-20 LoR expressed uncertainty about this question. Reasons for this result might be that 2nd generation Jordanians have professionally nothing to do with Arabic in Christchurch, or maybe they perceive English as more practical in the working environment. As Dweik (1980) observed, "the negative responses of the Yemenites for the usefulness of Arabic, perhaps stemmed from practical considerations attributed to English" (p. 97). At the same time, Dweik (1980) reported that the Yemenites showed positive attitudes towards the importance of the Arabic language, with 96% of the participants expressing their agreement with its importance. The importance accorded to Arabic is thus possibly related to psychological rather than practical reasons and also possibly stems from its central role in religion (pp. 97-98).

In my informal observations, I have seen and experienced my participants' positive attitudes towards Arabic when they were talking with me, with my wife and with others in the Arab community. They described how keen they are for their children to speak and maintain Arabic, and talked about the effort they apply to achieve that goal, such as speaking Arabic at home, visiting Jordan, having Arabic TV channels at home and sending children to learn Arabic in the mosque. Especially, women frequently discuss the importance of learning Arabic, particularly those who are planning to live permanently in New Zealand.

The results for attitudes towards Arabic cultural maintenance and family cohesion suggested that 2nd generation speakers are moving away from Arabic culture and family cohesion, whereas the 1st and 1.5 generations showed positive attitudes towards maintaining both of them. Dweik (1980) noted that Yemenites in the States "associated Arabic with their parents' roots, culture and nationality. They showed admiration and appreciation for the language of their parents… and identified themselves as Arabs who plan to return to the land of their ancestors" (p. 97). One of the reasons behind the 2nd generation's *disagreement* with these attitude questions might be that the speakers don't agree with the importance of getting married to an Arab woman because some of them are already married to non-Arabs and some have negative attitudes towards Arabic culture.

There were also significant variations in attitudes towards ethnic identity maintenance among the Jordanians in my study. All participants showed positive attitudes towards their ethnic identity and confirmed that they still feel that they are Arabs even though they are living in New Zealand. 1st and 1.5 generations considered the Arabic language to be closely intertwined with Arabic identity, whereas 2nd generation participants were *not sure* about this point. Both 1.5 and 2nd generations expressed uncertainty in their attitudes about the relationship between

knowing Arabic language and having an Islamic identity. The survey results suggest that Arabic language and Muslim identity are connected "core values" (Smolicz, 1981) for the 1st generation Jordanians, and Arabic language and Arabic identity are connected "core values" for the majority of 1st and 1.5 generations. Smolicz (1981) argued that language is usually most effective as a core value when it is connected with other core values, and when such core values require the use of the language for particular purposes (see section 2.4.5). Conklin and Lourie (1983) emphasised the importance of religious ceremonies to be performed in the community language for its maintenance. This is the situation with the Arabic language and Islamic religion in Christchurch (see section 4.1.2). My results tie in with existing research on the relationship between Arabic and Muslims' religious and ethnic identities (Albirini, 2016; Othman, 2011; Tawalbeh, 2017).

Further significant differences between generations were found in their attitudes towards having Arabic accent in their English and the automaticity of using Arabic with Arabs. The 1.5 and 2nd generations showed *disagreement* with the idea of having an Arabic accent in their English, and did not report automaticity of using Arabic in the presence of Arabs in the conversation, whereas 1st generation speakers showed agreement with both items. It is clear from these results that the younger participants dislike having an Arabic accent in their English, and this might be related to the eagerness of young immigrants to speak English like native speakers to facilitate their integration with the NZ community. So, we can say that those participants perhaps wished to sound more native English like. The result that 1st generation speakers saw value in having an Arabic accent in their English might be related to their perception that they couldn't be native-English-like because of their late time of arrival to NZ, and/or their old age. It is also possible that the accent didn't have the same meaning for them as for the 1.5 and 2nd generations, or they wished to construct a bicultural and bilingual identity. The LoR groups also showed significant variation in their attitudes towards Arabic accent and their automaticity of using Arabic with Arabs. The significant difference between 1-10 and 11-20 LoR means that those who have been living in the country for a fairly long time (11-20 years) didn't value having an Arabic accent in their English, but at the same time they did value their ability to automatically switch to Arabic when in the company of Arabs. This result suggests that these participants might start developing an L2 identity, which is expected for those who have been in the country for long time and is consistent with Gnevsheva (2015) who reported that "a longer length of residence correlates with the breadth of sociolinguistic variation as speakers' exposure

to different settings and audiences is enriched and the L2 identity is further developed" (pp. 64-65).

There was significant variation among generations and LoR in their attitudes towards English. 2nd, 1.5 generations and 11-20 LoR showed higher positive attitudes towards the English language than 1st generation and 1-10 LoR. However, all of them viewed English as extremely important. This result is consistent with Dweik (1980) who found that both Lebanese and Yemenite immigrant communities have positive attitudes about the importance of the English language and attributed that to: the importance of English for communication, job, education, professional aspirations and living in the States. Dweik (1980) said: "To them, English was an instrument for pursuing education and for securing a job. They also emphasized the universality of English and its significance for their living in the present and future times" (p. 98). Othman (2011) also mentioned that his Arabic participants' positive attitudes towards English in Manchester, UK stem from their need to use it, especially at work, school and university.

Tawalbeh (2017) likewise reported that all his Iraqi participants in Wellington, regardless of their age, age upon arrival, or ethnicity presented positive attitudes towards English and understood its importance. However, younger generations and those who have been living in NZ longer value English the most, and this might be due to a desire not to stand out from others at schools, universities and in the street.

Different generations also exhibited significantly different attitudes towards NZ citizenship, NZ culture, NZ identity and the presence of an NZE accent in the participants' pronunciation of Arabic were found. Younger generations 1.5 and 2nd showed more positive attitudes towards NZ citizenship, NZ culture, NZ identity and having a NZE accent in their Arabic. 1st generation participants, on the other hand, showed negative attitudes and *disagreement* with the idea of having NZE accent in their Arabic. They were also *not sure* about the necessity of speaking NZE accent to have the NZ identity. In my informal observations, the 1st generation participants' negative attitudes towards having a NZE accent in their Arabic speech might stem from the fact that these people spend most of their time engaging and communicating with Arabs who speak fluent Arabic. This encourages them to maintain their Arabic accent to avoid embarrassment when they interact with Arab people in NZ and overseas when they go back home. Furthermore, 1st generation participants were *not sure* about the necessity of speaking NZE to have the NZ identity, which might be due to their knowledge that it is difficult for them to acquire the NZE accent at their age. It could also indicate that the NZE accent doesn't mean much to them.

To sum up, the survey results point to a decline in Arabic oral proficiency and literacy skills among 1.5 & 2nd generations' participants and those who have been in the country for long time such as (11-20 years and 21-30 years). This is possibly due to the limited opportunities these speakers had to learn their ethnic language, given that the only formal instruction in Arabic available in Christchurch is in Quranic Arabic at the mosque on the weekend. At the same time, 1.5 and 2nd generation participants and those who have been in the country from 11-20 and 21- 30 years reported higher proficiency in English oral and literacy skills compared to 1st generation and 1-10 years participants, and this might be due to the dominance of English language use in Christchurch.

The survey results confirm that domains play a significant role in the process of LMLS. In the home domain, both *Arabic and English* languages were frequently used among 1.5 and 2nd generations and among those who have been in the country between 11-20 and 21-30 years. 2nd generation siblings reported using *mostly English* at home when interacting with each other, while their parents used *mostly Arabic*. The friendship domain was found to contribute least to the maintenance of the Arabic language, particularly among 1.5 and 2nd generations. The two younger generations reported using more English with friends than the 1st generation did. Finally, in the religious domain, Arabic language was the only language used by Jordanians when praying. All of them have perceived the Imam to be using both Arabic and English in the mosque and in the Friday ceremonies, with the 2nd generation having the perception that the Friday ceremonies are conducted *mostly in English*.

Jordanians in Christchurch generally showed positive attitudes towards both English and Arabic language, culture and identity. 1st generation participants most strongly subscribed to the view that it is important to know the Arabic language in order to have an Arabic and an Islamic identities. However, unlike the younger generations, they were *not sure* about the importance of speaking with a NZE accent to have a NZ identity. The next section will discuss the results of the interviews and the investigated variables.

5.2 Interview results and discussion

This section discusses the results for ING (5.2.1), intervocalic /t/ (5.2.2) and the three short front vowels KIT, DRESS, and TRAP (5.2.3). Two of the research questions outlined at the beginning of this thesis relate to the two consonants ING and intervocalic /t/.

1- What social factors influence the nature of ING and intervocalic /t/ variation?

2- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behaviour and their production of the two consonants ING and intervocalic /t/ in NZE?

The first question will guide the discussion in the next two subsections. The second question will be discussed in more detail in section 5.3, where I will look at the effects of the speakers' attitudes on the production of the variable ING and the DRESS F1, TRAP F2 and KIT F2.

5.2.1 ING

This section discusses the findings reported in Chapter 4 for the effect of social factors on the alternation between native (Ning) and non-native (NNing) realizations of ING.

5.2.1.1 Social factors as predictor of linguistic behavior

The results of the mixed-effects logistic model analysis for ING indicate that Jordanian immigrants didn't acquire the exact same patterns of variation as native speakers: two extra variants appeared in their productions, and the use and frequency of the different variants of ING is influenced by generation, gender, occupation, LoR and attitudes. In other words, the results support my hypothesis that speakers would exhibit variation in their production of the ING variable that was conditioned by social factors. The factor which I expected to have the greatest effect on variation in ING was the generation the speaker belongs to, as defined by their age at arrival in New Zealand. I anticipated that the younger a speaker was on arrival, the more likely they would be to achieve a native NZE-like pronunciation.

Generation was found to have a significant influence on speakers' production of (Ning). 2nd and 1.5 generation speakers were significantly more likely to use the NZE variants than 1st generation speakers ($p<0.05$). This result is as expected, because those who were born in or arrived in the host country at an early age have been found in sociolinguistic research to use more native forms (e.g., Labov, 2001b) and to be more likely to shift to the dominant language

than those who arrive as adults (see Al-Sahafi, 2010; Revis, 2015). According to the literature, speakers who arrive at a very young age are likely to acquire the host language features faster and easier than those who come at a later age (Adamuti-Trache, 2013; Jette Edwards, 2006). The production literature indicates that younger speakers tend to use the non-standard form [in] more than older speakers. My generation results for ING follow a common pattern for a stable socioeconomic variable, where 2nd and 1.5 generation speakers use (Ning) the most, and 1st generation speakers the least.

Length of residence (LoR) in the host country has also been found to be significant in the literature (Munro & Derwing, 2008; Purcell & Suter, 1980). According to the literature, speakers who live in the host country for a long time are more likely to acquire the host language features than those who live for just short time (Adamuti-Trache, 2013). Flege, Munro, and MacKay (1995) found that for immigrants who arrive in the host country after the age of 12, the effect of LoR is limited to an initial rush during the first year after immigration. That is, the earlier they arrive and the longer they stay, the better their target language performance tends to be. Many researchers found that immigrant students can improve their fluency in the new language over the first two years of residence in the dominant country. However, they need at least five to seven years (usually more) to achieve the levels of academic proficiency required to perform school tasks effectively (Collier, 1987; Cummins, 1981, 2000; Ramirez, 1992). Moreover, Worswick (2001) demonstrated that immigrant students who were born in Canada to immigrant parents need an average of ten years to reach the levels of English proficiency of native students. He compared the linguistic performance of second generation Canadian immigrant students (those born in the host country) with native Canadian students from the database of the National Statistical Service. Or as Drummond (2011, p. 302) described it:

> LoR in itself is not an explanatory factor, certainly not on anything other than a very simplistic level. It simply cannot be the case that simply spending time in a location has such a measurable effect on a person's speech; rather it is the interaction that occurs during this time. A longer LoR simply allows more opportunity for meaningful interaction in the L2. It is the nature of this interaction which then influences the extent to which patterns of variation are acquired.

Existing research indicates that low proficiency in the target language correlates with a lower generation and a lower LoR; however, in many studies, the effects of LoR and generation have been difficult to separate (Asher & García, 1969; Moyer, 2011). There tend to be confounds between these variables because the beginning of residence in the host community often coincides with the date that an L2 speaker is first exposed to his target language (Moyer, 2009). However, in my study, I separated between generation and LoR and treated them as two independent variables, because some of my speakers have been in NZ for 20 years but they came after the age of 16, while some came between the age of 6 and 15, and others before the age of 5 which means that that their ages at arrival were rather different even though they may have the same LoR. The results for LoR in my current study indicate that (Ning) use is particularly high among those who have been in the country for 11 to 20 years.

There appears to be a clear *gender* effect in the distribution of (Ning), with women more likely than men to use NZE variants. This effect represents a deviation from what I had expected. I expected men to be more likely to produce (Ning) realisations, because in Jordanian culture and Islamic religion, it is the men's role to work and support their wives and family. Most of the women in the Christchurch Jordanian community are housewives, but maybe their interactions with English-speaking neighbours, shop assistants, teachers, health professionals, as they do the shopping, take their children to school, medical centres, etc., enhanced their NZE pronunciation and produced more NZE-like than that of the men. The estimate relationship between gender male and the dependent variable (Ning) was found to be negative in my study (-1.6697). Although this result contradicts my expectations, it is consistent with some of the previous literature, because the pattern of ING results in existing studies was not constant in all cases as appeared in table 4.2. However, Schleef et al. (2011) findings resemble those found here. In their London data, the Polish females were more likely to produce [ɪn] than the Polish males and they attributed the pattern to ING not being a stable sociolinguistic variable for L2 speakers. The same significant results were also found for Polish migrants in Manchester, 16 speakers who exhibited [ɪn], 11 were female and 5 were male by (Drummond, 2012). Another reason for the gender difference in my study might be related to the way I grouped the variables in my analysis of the data (i.e. Ning and NNing). Most studies analysed the two native variants of the ING variable separately [in] and [ɪŋ], but in my study I have dealt with these two variants as one variant (Ning), while the other variant [ɪŋg] was (NNing), considered by itself as a dependent variable.

There appears to be a clear *occupation* effect in the distribution of (Ning), with *in-work* participants more likely to use NZE variants than those *not in-work*. This effect matches my expectations. According to the literature, speakers who are working tend to produce more native speaker variants (e.g., Ning) than those who are not working, because of high contact with native speakers in the work environment (Reid, 1978). Reid (1978) also demonstrated a correlation between ING realisations and socioeconomic status and the occupations held by the fathers of the speakers. He found that the informal alveolar variant [in] use increased as the prestige of the father's occupation decreased. Labov (2001) reports different effects for education and occupation. In formal speech, ING productions among his speakers were affected by both occupation and education, but in casual speech, only occupation had an effect. In my study, speakers who were not working didn't use the [ɪn] variant at all, but the ones who were working were using the [ɪn] variant. One reason for that might be that my speakers, and possibly migrants in general, are not aware what is formal and what isn't, what is prestigious and what isn't, what is stigmatised and what is not stigmatised in NZE. They just recognise [ɪn] as a native NZE variant.

5.2.2 Intervocalic /t/

This section discusses the external (social) factors influencing the production of CANONICAL, FLAP and GLOTTAL STOPS variants of intervocalic /t/ in the speech of Jordanian migrants living in Christchurch. Attitudes (PC1 & PC2) were not found to have a statistically significant effect on the realisation of intervocalic /t/, and for this reason, intervocalic /t/ will not be discussed in section 5.3.

The results of the mixed-effects logistic analysis indicate that the use of the intervocalic /t/ variants varies across generations, occupation and LoR, supporting my hypothesis that social factors would affect the production of the intervocalic /t/ variable.

The factor that I expected to have the greatest effect on variation on intervocalic /t/ was 'generation' (time of arrival). I anticipated that the younger a speaker was on arrival in New Zealand, the more likely they would be to achieve a native-like pronunciation; that is, they would use more FLAPS and GLOTTAL STOPS. Generation was found in the analysis to have an influence on all variants of the intervocalic /t/ (i.e., CANONICAL, FLAP and GLOTTAL STOP). 1st and 1.5 generation speakers were significantly more likely to use the CANONICAL variant than 2nd generation speakers ($p<0.05$). 2nd generation speakers tend to produce the highest rate of

FLAPS, followed by the 1.5 generation, while the 1st generation only rarely used this variant. The results presented in section 4.2.2.3.3 seem to suggest that there are significant differences between 1st and 2nd generation speakers in the use of glottal stops, but not between 1st and 1.5 generation speakers (the 1st generation seems to be used as the baseline/intercept here). 2nd generation speakers showed a significantly higher use of GLOTTAL STOPS than the 1st generation.

The production literature indicates that 2nd and 1.5 generation speakers tend to use the CANONICAL variant less than 1st generation speakers, but more FLAP and GLOTTAL STOPS. My findings for generation coincides with those in other studies who found that young/ 2nd and 1.5 generation speakers use more FLAP and GLOTTAL STOPS than old/ 1st generation speakers do (Alshboul, 2018; Docherty et al., 2006).

My research provides evidence that Jordanian speakers living in Christchurch (e.g., 11-20y and 21-30y) are, to varying degrees, acquiring patterns of variation of intervocalic /t/ that differ from the patterns of 1-10 year LoR speakers. The 11-20 years and 21-30 years groups were significantly less likely to use the CANONICAL variant than the 1-10 years group. Speakers with 11-20 years LoR tend to produce the highest rate of FLAPS, then the 21-30 years group, while the 1-10 years group rarely used FLAPS. LoR was found not to influence the production of GLOTTAL STOPS.

Occupation was also found to significantly influence the production of intervocalic /t/. Participants who were *in-work* produced more FLAP than those who were *not in-work*. The CANONICAL variant is clearly the most frequent variant among *not in-work* speakers, while FLAP and GLOTTAL STOPS are more common among the *in-work* speakers. According to the literature, speakers who are working tend to produce more native speaker variants (e.g., FLAP and GLOTTAL STOPS) than those who are not working, because of high contact with native speakers (Reid, 1978).

5.2.3 Vowels KIT, DRESS and TRAP

Two research questions outlined at the beginning of this thesis relate to the three NZE short front vowels:

1- Will speakers' vowel variation be conditioned by social factors and lexical frequency?
2- Do the attitudes speakers express in the questionnaires and interviews predict linguistic behavior and their production of the KIT, DRESS and TRAP vowels in NZE?

The first question will guide the discussion below. The significant results for the second question will be discussed in section 5.3.

The social factors gender and generation, as well as lexical frequency and attitudes to PC1(attitudes towards Arabic and culture) & PC2 (Attitudes towards NZ English and culture) were found to be significant predictors of vowel production in my study (DRESS F1, TRAP F1 & F2, KIT F1 and KIT F2).

Gender and generation and the production of DRESS F1 were found significant in the study. 1st generation male speakers appeared to produce higher DRESS (low F1) than 1.5 female speakers. And 2nd generation males appeared to produce lower DRESS (high F1) compared to 1.5 female speakers who showed higher DRESS. In other words, 1st and 1.5 generations were producing more NZE-like DRESS than the second generation and 1.5 generation females used raised DRESS more than 1.5 generation males. These results somehow contradict my expectations that the 2nd generation was expected to produce the most raised DRESS rather than the 1st and 1.5 generations. But, at the same time goes with my expectations with 1.5 generation who also showed raised DRESS rather than not-raised one.

Moreover, gender was also found to be significant in the production of TRAP F1 and F2. A significant difference was found between males and word frequency with females and word frequency. Males and females produced high TRAP (low F1) with high frequency words and low TRAP (high F1) with low frequency words, but low TRAP was more likely to be produced by males more than females with low frequency words. Furthermore, males and females were found significantly different in the production of TRAP F2 by generation. 2nd generation males appeared to produce back TRAP compared to 1.5 and 2nd generation females who produced front TRAP. Female speakers appeared to produce more NZE-like TRAP F1 and F2 than male speakers and this result is expected because 2nd generation females (Laila and Samera) came to the country at the age of 2 and stayed in the country till the time of the interviews compared with the 2nd generation males who were born in NZ, and left it at the age of 4, then came back when they were adults.

The production of the KIT F1 by males and word frequency was significantly different from females and word frequency. Males produced low KIT vowel (high F1) with low frequency words compared to females who also produced low KIT vowel (high F1), but with high frequency

words. Females and males tend to produce more NZE like KIT with low and high frequency words, respectively. The reason why females tend to produce more NZE like KIT with high frequency words might refer to that they hear it spoken more often by Kiwis more than males. My results are unlike the results in Gnevsheva (2015) who found no main effect of speaker sex; the male and female speakers in the two language groups did not show any significant difference in their production of the vowels.

A word frequency effect turned out to be relevant for TRAP and KIT, with significant interactions between gender and frequency for TRAP F1 and KIT F1, and between generation and frequency for TRAP F2. 1st generation speakers produced all the time back TRAP with high and low frequency words compared with 1.5 generation who produced front TRAP with high frequency words . However, 2nd generation speakers produced front TRAP with low frequency words and back TRAP with high frequency words.

These interactions support the argument that lexical frequency is involved in regular sound change. For female speakers, the higher the word frequency the lower the production of the KIT vowel. And for 1.5 generation, the higher the word frequency the front the TRAP vowel and the lower the word frequency the backer the TRAP vowel. This result is generally in line with the literature on the speech production; the words that are more frequent have been recognized and produced more in the NZE accent (Gnevsheva, 2015). There was also a significant interaction between generation and attitudes to PC1 and PC2 in my study, which will be discussed further in section number 5.3.

5.3 Attitudes as predictor of linguistic behavior for the variable ING and the DRESS F1, TRAP F2 and KIT F2

The second and the fourth research questions asked in this part of the thesis directly investigated the connection between speakers' attitudes and their linguistic production of the two consonants ING and intervocalic /t/ and the short front NZE vowels KIT, DRESS and TRAP. Results for the variable ING and the vowels suggest that speakers' use of the native variants of ING (Ning) and native variants of NZE vowels (DRESS F1, TRAP F2 and KIT F2) correlated significantly with the attitudinal index scores obtained from the questionnaire.

In most cases, speakers with more positive attitudes towards PC2 (NZ English and culture) showed a higher probability of producing the native NZE variants. This was supported in my study, but just with ING variable not with the vowels. The statistical significance of the production of the (Ning) and the attitudes are worthy of further comment. Although it offers positive attitudes towards Arabic language and culture, it doesn't act as a disincentive to the use of the raised DRESS vowel as it is not clear enough that positive attitudes to Arabic language and culture are enough to inhibit their use.

Speakers who have positive attitudes toward the L2, its speakers and culture are more likely to acquire the L2 proficiently than those speakers who have negative attitudes (Ellis, 1994). However, their language attitudes may not necessarily impact their language practices (Garrett, 2010). The qualitative attitudinal information from the interviews has been found to provide helpful evidence for interpreting linguistic variation and change (Clark & Watson, 2016; Llamas, 2007; Xuan Wang, 2017). I therefore draw on the interviews to explain the relationship between the speakers' attitudes and their production of (Ning) and the NZE DRESS F1, TRAP F2 and KIT F2. I suggest that their productions of (Ning) and the DRESS, TRAP and KIT vowels are connecting to positive vs. negative attitudes, instrumental vs. integrative attitudes/motivations, and identity. Section 5.3.1 will discuss attitudes as predictors of the production of (Ning), followed by a discussion of attitudes as predictors of the production of DRESS F1, TRAP F2 and KIT F2 in Section 5.3.2.

5.3.1 Positive vs. negative attitudes and the realisation of ING

This section discusses the second research question in the thesis:

> 2- Do speakers' attitudes collected by questionnaires and interviews predict linguistic behaviour and the production of the ING variable in NZE?

In this section, I elaborate on the attitudes displayed by my participants in their interviews. The results from the quantitative statistical analysis indicate that speakers' production of the (Ning) pattern is influenced by their attitudes to PC2, as measured in the questionnaire. Gallois et al. (2012) stated that direct methods of attitudes measurement like questionnaires and surveys, are excellent indicators of attitudes expressed by speakers, but they were not always good predictors of behavior. Questionnaires also don't truly capture everything about attitudes and

could not fully reflect speakers. It is therefore helpful to use the qualitative attitudinal information from interviews as additional evidence when interpreting linguistic behavior.

Figure 3.3 in (section 3.2.7.1) shows the speakers' attitudes towards PC2 and PC1 in the questionnaires, which I use in the discussion to compare that with the attitudes they express in the interviews. Extracts from the interviews will be used to illustrate their attitudes towards PC2. Extracts 1, 2 and 3a[7] present parts of my recorded interviews, where speakers talk about their attitudes to English and NZE.

The 2nd generation speaker *Mahmoud* in Extract 1 expressed positive attitudes towards English in general (PC2) and said:

Extract 1: Mahmoud

> For the most part I don't have the New Zealand accent. So can I change my accent to a New Zealand accent? I don't think so, uhm what I have is mix between British - American English or accent, but I don't think I can actually stick to one accent or change it. I don't care about changing it also, as long as it is easy to understand for the person in front of me I don't think it matters too much, uhm the kind of English I am speaking plus I guess New Zealand Accent is: it's it's a New Zealand accent a bit difficult to understand for foreigners so I don't see a reason that I would want it.

Mahmoud's positive quantitative results towards PC2 in the questionnaires don't match his attitudinal qualitative results towards NZE accent, but match with his production of the (Ning) variants. *Mahmoud* produced only (Ning) and was positive towards English language in general, but not towards NZE and maybe this is the reason behind his low DRESS vowel production as it is clear in Appendix 3.

Faten in extract 2, from the first generation explained that she couldn't speak NZE because it is difficult and because she arrived as an adult.

Extract 2: Faten

> uhm I can't I can't you know because I learn the good English here with the accent of Arabic it's difficult to be a New Zealanders with the New Zealand accent, I feel it's uhm it's very difficult (cough) yeah yeah yeah. If I be here maybe when I am

[7] '3a' stands for the number of the extract. While 'a' means that there are other extracts like 3b and 3c.

> kid maybe but now it's no no way (laugh). But I can yeah I can just speak English they can just understand what am saying they just sometimes they say just: oh my God you are speaking English very good!

Faten could also just be making a factual observation that maybe she would be able to speak with a NZE accent if she had come to NZ as a kid. It is clear from this extract that she is happy to have learned good English and make herself understood, but whether she really wants to speak with a NZE accent is less clear. Going by Figure 3.3, Faten's score for PC2 is neither really low nor really high, so the prediction would presumably be that she'd be less likely to produce (Ning) forms than speakers with a lower PC2 score. *Faten's* qualitative attitude results towards English match with her quantitative PC2 results, and match with her linguistic behavior. *Faten* was able to produce only (NNing). This result is expected and reflects my expectations; immigrants who come to the country when they are old will not be able to accommodate completely with L1 speakers and produce native-NZE like. Old age of arrival to NZ and limited interaction with the native speakers of English is another reason to have such a result. Moreover, these speakers listened first to English language in their Arabic countries and for EFL teachers and according to the literature we understand that "speech that is listened to is stored in memory and can affect future speech production and perception" (Todd, Pierrehumbert, & Hay, 2019, p. 2). One more possible reason for the production of the (NNing) and having positive attitudes toward PC2 by the 1st generation might be related to their instrumental attitudes towards PC2 rather than the integrative attitudes (Belmechri & Hummel, 1998; Dörnyei, 1990).

Haithem in extract 3a, from the 1.5 generation reported that he has a Kiwi accent because he learned English in New Zealand. His attitude seems positive towards NZE. *Haithem's* qualitative attitude results towards English and NZE match his quantitative PC2 results and directly predict his linguistic behavior and the production of the (Ning). *Haithem's* production was (Ning) all the time.

Extract 3a: Haithem

> I've picked up most of the kiwi accent because I learned English here and Arabic I think I still speak Arabic in the way I was learned back when I was back in UAE and Jordan, it doesn't affected English.

5.3.2 Positive vs. negative attitudes and the realisation of the DRESS F1, TRAP F2 and KIT F2

This section discusses the fourth research question in the thesis:

> 4- Do speakers' attitudes collected by questionnaires and interviews predict linguistic behavior and the production of the KIT, DRESS and TRAP vowels in NZE?

A significant quantitative attitude effect was found for the DRESS F1, TRAP F2 and KIT F2.
The model for DRESS F1 (Table 4.7) and the graph for generation & PC1 suggest that attitudes to PC1 only affect the production of DRESS among 2nd generation participants; for those participants, a higher PC1 score (negative attitudes) seems to go with a high DRESS vowel. This result generally reflects my expectation on the speech production. 2nd generation speakers on the other hand, showed negative attitudes in the questionnaires towards Arabic (PC1) and produced raised DRESS. According to the literature, the less positive attitudes speakers have towards their L1, the more they accelerate in their shift and accommodate towards L2 (Albirini, 2016; Tawalbeh et al., 2013). This result might be clear in the production of the 2nd generation speaker *Laila* who showed negative attitudes towards PC1 in the questionnaires (see figure 3.3) but not in the interviews (see Appendix 3) and produced high DRESS.

Extract 4: Laila

> **Interviewer**: How do you feel when people say that you have an Arabic speech style when you speak English?
> **L**: Never had
> **Interviewer**: How do you feel when people say that you have a New Zealand speech style when you speak Arabic?
> **L**: yeah that, yeah yeah that annoys me because they don't like , I understand where I come from and my Arabic could be better, but they don't appreciate how how it was to still to be able to learn and speak Arabic, living here for so long! I can be happy with more support instead of being like angry and then like ah you need better like you should support me to be better you should encourage me instead of making me to not want to speak it in front of you any more (laugh). My Kiwi friends when they hear me speak Arabic they say I speak differently.

Moreover, 2nd generation speakers produced high DRESS and back KIT (more NZE-like) with negative attitudes towards English (PC2). So, the 2nd generation pattern suggested by the graphs is unexpected. This result suggests that only the 1.5 generation speakers show the pattern I expected that means the more the speakers were positive towards PC2, the more they produced high DRESS. But, the results for 1.5 generation and PC2 were not significant in the model, so they were not further discussed. The 2nd generation result might be clear in the production of the 2nd generation speaker *Mahmoud* who showed positive attitudes towards PC2 in the questionnaires and negative attitudes towards PC2/NZE in the interviews as it appeared in (extract 1) and produced both low DRESS (not NZE-like) and back KIT (NZE-like) vowels as they appear in Appendix 3. This result, however, is consistentwith the previous literature Garrett (2010) who mentioned that language attitudes may not necessarily impact their language practices.

On the other hand, 1st generation speakers appeared in (Table 4.7) to produce high DRESS with positive attitudes towards English (PC2). So the 1st generation pattern suggested by the graph is unexpected because those speakers came to New Zealand when they were old. This result might be clear in the production of the 1st generation speaker *Kamal* who produced sometimes high DRESS as it appears in Appendix 3 and match with his positive attitudes towards PC2 in the interviews (see extract 5), but not in the questionnaires who showed negative attitudes towards PC2 (see Figure 3.3) rather than positive attitudes.

Extract 5: Kamal

> Yeah yeah yeah, ah the accent you mean, yes I like to speak Kiwi accent. Of course yeah it's improved every day it will be improved but in the end I don't think I can get the accent because my age.

Moreover, 1st and 1.5 generation speakers appeared to produce back and front TRAP, respectively with positive attitudes towards Arabic (PC1). A good example here on the 1st generation is *Deema* and *Manal* who showed positive attitudes towards PC1 in the questionnaires and in the interviews (see extract 6), and at the same time they produced back TRAP as they appear in Appendix 3.

Extract 6: Manal

> Of course Arabic language it's our identity first, and then it's the language of Qur'an and then it will be the language in the Heaven. Encourage children to speak Arabic. Parents should speak Arabic with their children and try with them when they speak English uhm: can you speak Arabic please I don't understand what you mean I found it its very very helpful.

And a good example on 1.5 generation is *Adam* who showed positive attitudes towards Arabic in both the questionnaires and the interviews (see extract 7), and at the same time produced front TRAP as it appears in Appendix 3.

Extract 7: Adam

> I would say Arabic is more important in the sense of spirituality so for me I am a Muslim and I believe in Islamic religion and in Islam the best way to understand the religion is through the Arabic language and may be if you come to the bottom of it the spirituality side will have to take the slightly more important so Arabic is gonna have to take that.

To sum up, the quantitative and qualitative attitudinal information from the questionnaires and the interviews have been found helpful in interpreting the consonant and vowel results. And at the same time this is consistent with the previous literature on linguistic variation and change (Clark & Watson, 2016; Llamas, 2007; Xuan Wang, 2017). I used the interviews to explain the relationship between the speakers' attitudes and their production of the (Ning) and the NZE DRESS F1, TRAP F2 and KIT F2. I showed that their productions of (Ning) is connecting to their positive attitudes towards PC2 in both the questionnaires and the interviews. And at the same time, I showed that their productions of low DRESS vowel is connecting to their negative attitudes towards PC2, such as the 2nd generation speaker *Mahmoud* (see Appendix 3). Moreover, I showed that the 1.5 generation was only significant in the production of TRAP F2 and PC1 and their linguistic behavior was expected. 1.5

generation produced front TRAP with positive attitudes towards PC1 and this was clear in Adams' interviews and questionnaires who showed positive attitudes toward PC1.

Section 5.3.3 will discuss instrumental and integrative attitudes/motivations and the production of ING and DRESS F1, TRAP F2 and KIT F2, followed by a discussion of identity and the production of (Ning), DRESS F1, TRAP F2 and KIT F2 in Section 5.3.4.

5.3.3 Instrumental and Integrative attitudes/motivations and the production of ING and DRESS F1, TRAP F2 and KIT F2

According to the literature, integrative attitude/motivation is associated with high proficiency in the target language, while an instrumental attitude/motivation is associated with low proficiency in the target language (Gardner, 1985b). Instrumental attitudes towards English are evident in my interviews with my Jordanian speakers from the 1.5 and 2nd generations (e.g. Adam, Anwar and Laila), and also across the 1st generation speakers (e.g., Deema and Jamal) who all revealed that their reasons for learning the English language were: *"education, job, financial, successful communication and good life"*. This is consistent with C. Baker (1992), Gardner and Lambert (1972), and Gholami et al. (2012), who reported that instrumental attitude/motivation refers to more practical reasons for learning a language, such as to pass a required examination or to get a better job or promotion, gain social recognition or economic advantages. The results in my study can be seen across my speakers from the 1.5 and 2nd generations who expressed instrumental attitudes towards English (as illustrated in extracts 7b, 8 and 4b, but at the same time reported high proficiency in it and this is clear in their consistent production of (Ning) and raised DRESS F1, front TRAP and back KIT (e.g., Adam, Anwar and Laila). Although, Adam's DRESS vowel is only slightly raised compared to Laila and Anwar who used raised DRESS.

Interviewer: Which language do you think is more important to you and your children (if you are married), Arabic or English Languages? Why?[8]

Extract 7b: Adam

[8] Question modified from Gardner (1985a) cited in C. Baker (1992, p. 32).

am uhm it is a tough one I think both are important but for different reasons so more important is very subjective I think I would say it more important in the sense of spirituality so me I am a Muslim and I believe in Islamic religion and in Islam the best way to understand the religion is through the Arabic language so it is very critical for us to teach our children this language use for them to be able to really grasp the spiritual concepts at the same time unfortunately or fortunately how you wanna look at the English language is now the standard for communication around the world so when it comes to education and career it is essential to have English so you're saying two very important things in one's life. one is the spiritual aspect and one is the financial and successful career aspect they both to me (laugh) essentially important I don't think I can say one is more important than the other but may be if you come to the bottom of it the spirituality side will have to take the slightly more important so Arabic is gonna have to take that.

Extract 8: Anwar

Arabic yes from a Muslim stand point of view so from Muslim as from Islamic point of view it's important to know Arabic so that would be important to me from the Islamic side yes yes. Well first first the Islamic side that's the most important thing then the professional life comes seconds come second so if you want to learn English for professional side that will be the second most important thing. The most important thing is to to concentrate on the Islamic side which's Arabic and then yah whatever you want to do any other language.

Extract 4b*: *Laila

uhm that's hard I think to me Arabic is important because it's obviously the the language of the Quran and that's why I want to be with someone who's who spoke Arabic better than me because our children would learn from him (laugh) not from me (Laugh) but I saw English is very important because you can't live in New Zealand without it you won't be able to get a job you won't be able to get educated so to me they're both important.

As we can see from the quotations, the 1.5 and 2nd generation speakers presented instrumental attitudes towards English rather than integrative attitudes, which contradicted my expectation. My expectation was that those who came to New Zealand at a young age will show integrative attitudes towards English more than Arabic. But their responses in the interviews suggest the opposite. The 1.5 and 2nd generation speakers showed integrative attitudes towards Arabic and instrumental attitudes towards English, even though they have been in New Zealand for at least half of their lives and arrived in NZ at a very early age.

Those three speakers who produced the (Ning) and raised DRESS, front TRAP and back KIT vowels displayed 'high proficiency and instrumental attitudes' rather than 'high proficiency and integrative attitudes' towards English language. This result supports claims by Belmechri and Hummel (1998) and Dörnyei (1990) who stated that instrumental attitude has a stronger influence on second language learning than the integrative attitudes.

My results also provide evidence for the negative correlation between integrative motivation and proficiency observed by (Belmechri & Hummel, 1998; Dörnyei, 1990). 1.5 and 2nd generation speakers expressed integrative motivations towards learning *Arabic* language in the interviews and their orientations towards learning it as: *"my religion, my identity, my tradition, communication, marriage purposes, spirituality, Islam, my culture, my faith, my country and my roots"*, but the results from the proficiency part in the questionnaire revealed that they had a regression in their Arabic language proficiency especially in reading and writing skills and their proficiency in English is higher. In other words, although these two young generations exhibited integrative attitudes towards the Arabic language in the interviews, they showed regression in their Arabic skills rather than maintenance.

Sometimes it is difficult to divide instrumental and integrative motivations (Brown, 2000), and many studies have clearly displayed that instrumental and integrative motivations can mutually exist among speakers. The following extracts provide examples of this from among my participants. *Jamal*, in extract 9, showed integrative and instrumental attitudes towards English. He considered English as very important for dealing with Kiwis and communicating with them in a proper way, which suggests both a recognition of the instrumental function of English and a desire to be integrated, respected and understood by the NZ community. *Abeer*, in extract 10, exhibited an integrative motivation towards English when she said that 'it will not be possible to communicate and integrate with Christchurch people without knowing English', and an instrumental motivation when she reported that 'she couldn't sit and watch a movie without knowing English'.

Jamal and Abeer from the 1st generation showed both integrative and instrumental attitudes towards English. They both produced only (NNing), but regarding the vowels they produced both high and low DRESS vowel, back and front TRAP vowel and back and front KIT vowel (see Appendix 3). However, the results for the (NNing) use is predicted and associated clearly with their generation more than the vowels. I was expecting the 1st generation speakers to produce only low DRESS, back TRAP and front KIT.

Extract 9*: *Jamal

> Both, both of them because we are originally, we are speaking Arabic and we are Muslims. So we have to speak Arabic and to read Arabic as well very well so we can know uhm our our religion and we can, we can also read our holy book so it is very important to know Arabic as well as English yeah because we are living in English society so we need to deal with kiwi people and they they are not speaking Arabic so we need to communicate with them so we cannot communicate in Arabic of course so we need English to communicate in a proper way with them.

***Extract 10:* Abeer**

> uhm I think this question is a little bit tricky uhm no one better than other one because same are important it's depend on the situation because you cannot sit and watch television without you know English you can't go to the community and interact with Christchurch community without knowing their languages so both of language are important to me.

The instrumental motivation which the speakers have shown in the interviews might be attributed to the purpose of language acquisition across my Jordanian speakers, which was more utilitarian, such as meeting the requirements for school or university graduation, getting a job, requesting higher pay based on language proficiency or achieving higher social status. The instrumental motivation in their responses explains to some degree the types of results I have achieved.

In the next section I will discuss the results for ING, DRESS F1, TRAP F2 and KIT F2 in light of *identity construction* (Eckert, 2008), drawing on the interviews for evidence.

5.3.4 Identity and the production of (Ning), DRESS F1, TRAP F2 and KIT F2

The statistical significance of attitudes toward English PC2 for the production of (Ning) and the statistical significance of attitudes toward English PC2 and Arabic PC1 for the production of DRESS F1, TRAP F2 and KIT F2 vowel draw an interesting picture, which highlights the importance of identity in the acquisition of native NZE features. According to Eckert (2012), language variation is the result of people's attempt to index different social meanings through the language. For example, through different patterns of speech, people may index their social class, age, gender, attitude and identity. In certain contexts, certain language features become associated with certain social meanings, and these meanings vary from context to context. Identity can predict what might be happening in my community. Those speakers who identified themselves as "Arab-Muslim-New Zealanders", or "American and Kiwis" were found to be more likely to produce (Ning) variants in the analysis and less likely to produce (NNing).

Some Arabic Jordanian speakers identified themselves "Arab-Muslim-New Zealanders" (Laila, Haithem, Ramiz and Anwar), others identified as "Arab-Muslim" (Manal, Deema, Abeer, Salma, Mahmoud and Hana), another one said that she is "only Muslim" (Mai), one mentioned that he has an identity crisis and identified himself as a multi-cultural person with multi-identities "Palestinian, Muslim, Kiwi and semi-American" (Adam), others mentioned that they are "Palestinians, Jordanians, Arab Muslim and Arabs" (Samera and Kamal), and one of them said she is "Arab, Muslim and Middle Eastern" (Lona), one more said that he is "Kiwi, Arab and Middle Eastern" (Hamed). While, some said that if he/she was in Australia or in an Arab country and someone asked her/him about her/his identity she/he will say "I am New Zealander" (Abeer, and Jamal).

It is possible to view the variants of ING, as existing on a continuum (figure 5.1), with the most Arabic-influenced variant at one extreme, and the most NZE-influenced variant at the other. It should be noted that this interpretation involves the acceptance of the argument made earlier about (NNing), more likely being an L1-influenced variant than a New Zealand variant (Kalaldeh, 2016).

While some of the speakers are likely to be at one end or the other, the results of the analyses suggest that those speakers who identified themselves as "Arab-Muslims, Muslims, Middle Eastern, Jordanian and Palestinian", exhibit all variants (but tend to considerably different degrees towards NNing). While those speakers who identified themselves as "Arab-Muslim-New Zealanders, Kiwi, and American" exhibit only Ning variant. The continuum is found

applicable only for the variable ING, but not for the vowels. Among the speakers who identified themselves as Arab new Zealanders many produced low DRESS VOWEL, front KIT and back TRAP rather than producing high DRESS VOWEL, front TRAP and back KIT. And on the other hand, those who identified themselves as Arabs, Muslims and Middle Eastern many of them found to use high DRESS VOWEL, back KIT and front TRAP (NZE-like).

NNing Ning

Arab Muslims, Muslims, Middle Eastern, Jordanian, Palestinian, Arab-Muslim-New Zealander, Kiwi, American

Figure 5. 1 Continuum of production of NNing and Ning

My analysis suggests that speakers who identified as "Arab-Muslim-New Zealanders" and from the 1.5 and 2nd generations (like *Adam*) tend towards producing (Ning) variants (see Figure 5.2), and speakers who identified as "Arab-Muslims", or "Muslims only" or sometimes identify partially as New Zealander who are from the 1st generation (like *Abeer*), tend towards producing the (NNing) variant (see Figure 5. 3).

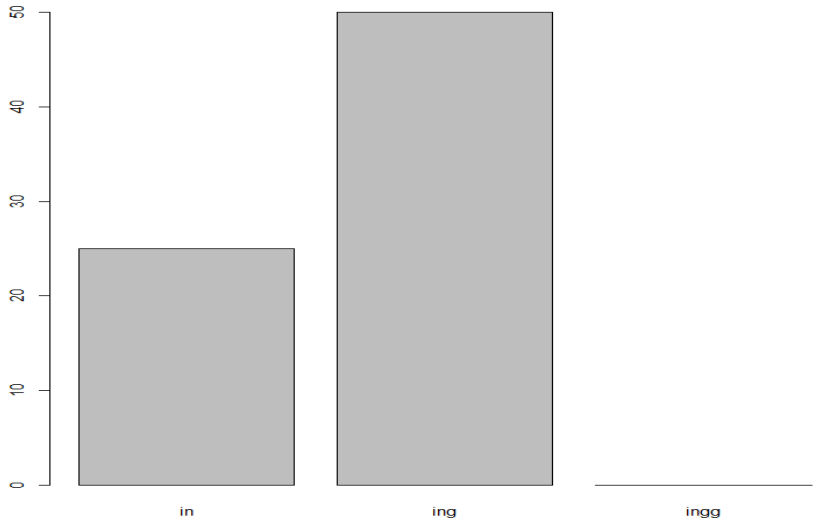


Figure 5. 2 Adam's production of [ɪn] and [ɪŋ], (Ning)

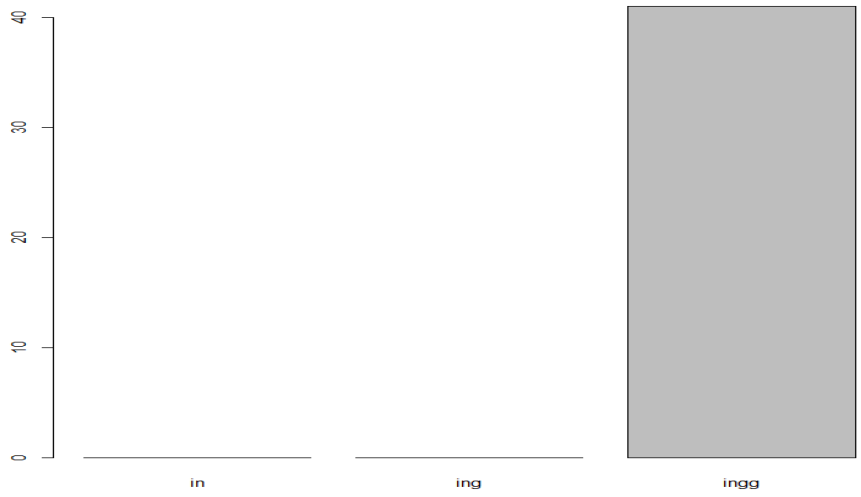


Figure 5. 3 Abeer's production of [ingg], (NNing)

When I consider the social meaning of the variable ING and its three variants in the context of this study, it seems to me that the (NNing) variant [ɪŋg] carries as much social stigma as the [ɪn] variant does in some native varieties of English (e.g., American, British, Australian and New Zealand English). According to my informal observations in the community, the production of the [ɪŋg] variant among Jordanian immigrants reflects low proficiency in English and some educators will say: 'oh (s) he has the Jordanian English/accent'. The production of the non-standard [in] variant by my Jordanian speakers, on the other hand, didn't seem to me to carry any of the social stigma it has in NZE and other native varieties. My findings for [in] is consistent with Za'rour (2018), who reported that the use of the [in] variant by Wellington Arab speakers didn't seem to her to carry as much social stigma as it does in some parts of the United States. The results in my study for ING, one could see an indexical meaning for the variants (see table 5.1). I can infer that Arab-Muslim-New Zealander, Kiwi, American identities, education, job, successful communication, good life, 1.5 generation, 2nd generation, instrumental and integrative attitudes index the production of (Ning).

Ning	**NNing**
Arab-Muslim-New Zealander, Kiwi, American, education, job, successful communication, good life, 1.5	Arab-Muslim, Muslim, Middle Eastern, Palestinian, Jordanian, low proficiency in English, not in-work, the Jordanian accent of English, 1st

generation, 2nd generation, instrumental and integrative attitudes.	generation and instrumental and integrative attitudes.

Table 5. 1 Indexical table of (ING)

The expressions in the first column in (table 5.1) represent/index potential meanings for the (Ning), while those in the second column represent the potential meanings for the (NNing) variant. One cannot assume that this classification works in lockstep. For example, according to the analysis (Ning) is more likely to be produced by those who identified as "Arab-Muslim-New Zealanders, Kiwis and Americans" who are from the 1.5 and 2nd generation such as *Laila* and *Adam* and there are some from the 1st generation who produced both (Ning) and (NNing), such as *Kamal and Mai*, and some identified themselves as partially New Zealanders from the 1st generation like *Abeer* and *Jamal*, but produced all the time (NNing). However, some speakers from the 1.5 and 2nd generations identified themselves as Arab Muslims rather than Kiwis and produced (Ning) all the time such as *Lona* and *Mahmoud*, respectively. So, one cannot surely judge/index a social meaning about a speaker just because he/she used this or that variant because the native variant (Ning) might be used by Arab-Muslim-New Zealander or Arab Muslim, Palestinian, Jordanian or Muslim only.

If I go back again to identity, indexicality and social meanings, I can infer here that using the (Ning) variants index other social meanings presented in the interviews such as: *education, job, successful communication and good life*. While, the production of the (NNing) index *low proficiency in English, not in-work and the Jordanian accent of English*. These social meanings are associated with the production of (Ning) and (NNing), but not with raised and low DRESS, front and back TRAP and front and back KIT, possibly because production of a high DRESS and high TRAP and back KIT are features peculiar to NZE that do not exist in the British or the American varieties which many of my speakers are keen on speaking as they are more widespread in the world than the NZE. Moreover, the production of low DRESS, back TRAP and front KIT variants by my Jordanian speakers didn't look to them, to the community and to me to carry any of the social stigma, such as low proficiency in English language skills or not educated or not-in work. In future research, it would be valuable to carry out a series of perceptual experiments aimed at identifying social meanings speakers associate with the (Ning) variants, the Jordanian variant (NNing), raised vs. lower DRESS and TRAP and front and back KIT from which we can find the social meanings to be assessed for these variants.

It has been argued that variations in speech can become powerful indicators of local identity and affiliation (Montgomery, 1995). In my interviews different speakers produced different pronunciations of ING, DRESS, TRAP and KIT and that these pronunciations constructed the identities they expressed. Extracts 7c, 3b, 11, 12 and 10b present parts of my recorded interviews to explain these significant results, by matching the qualitative data with both their productions of (Ning), raised DRESS, front TRAP and back KIT and identities. However, we should take in to our consideration that their productions don't necessarily always reflect the identities they express as we will see in the next paragraphs.

Adam, 1.5 generation, is a Jordanian participant who arrived in New Zealand at the age of 9. *Adam* in Extract 7c reported that he is very multicultural and has different identities, which comprise Palestinian, Muslim, Kiwi and American. He stated that he tries to take what is good from every identity. As we can see from the extract, *Adam* positioned himself as in-between Palestinian-Muslim and New Zealand-American cultures, which explains his perception of having identity crisis. The reasons *Adam* did not identify solely with Palestinian and Muslim identities were that he has a NZ passport, represented NZ in sport and at company level, promotes what NZ does in technology and is very proud of being a New Zealander. Moreover, *Adam* had lived in the States for seven years, so he identifies with a lot of things there such as American football and beef jerky. *Adam* reported that he has a clash in his identity and mentioned that people like him have the same problem (*Adam* knows the Jordanian community and his age group well). *Adam* mentioned that he has Kiwi friends and likes the working culture in his company, but he doesn't subscribe to the drinking culture and mentioned that this is the thing that most Muslims in Western culture suffer from, because it is one of the aspects of the Western culture that doesn't fit with the Islamic spiritual way of thinking. *Adam's* identification with and pride in his Arab-Muslim origin match with his proficiency in Arabic (oral skills), and at the same time, identification with and pride in his Kiwi and American identity match with his production of the (Ning), front TRAP, back KIT and slightly raised DRESS. So maybe the reason his DRESS vowel is only slightly raised is because American English has a lower DRESS vowel than NZE.

Extract 7c: Adam

> Sure uhm identity is a very very difficult one I think. I think it is might I identify myself with many different aspects so I recognise that am obviously **I am**

Palestinian, so that is a big important part of my identity although I was never born in Palestine. Uhm and I only went there in a small visit. The reason why I identify with Palestine specifically is, in the fact, I wasn't there is because I believe there is a big injustice just happening there. So it is important that we insure that name was not lost. The people understand that Palestine exists so that's one of the reasons why I identify as Palestinian.

But to be fair I mean culturally I never lived in Palestine and I don't, I wouldn't it is hard to say that you know, maybe it is hard to feel to express actually so the Palestinian part that's I guess I explain that the Islamic part is very important so **I identify myself as a Muslim.** So but this is not a nationality, but this is a spiritual way of thinking, I am and at the same time **I identify myself as a kiwi**. I've got the New Zealand passport, I've represented New Zealand in sports, uhm I've represented New Zealand on a company level so I promote what New Zealand does in a technology scene and I am very proud of of of that aspect of being New Zealander.

Uhm and I've lived in the states for ten years so **I can identify myself a little bit with a lot of things in state**. I like American football I like beef Jerky is a very common food eat there, so I don't know, I am very multicultural. it is hard for almost you can say there is an identity crisis with people like myself because it is hard sometimes there is a clash even between.

okay if you identify yourself as kiwi, drinking culture is very important for example in in the New Zealand culture but that's not something I can do on the spiritual level so does that mean I am not a kiwi I mean there is a lot of times in my life were you sort of set there okay well does this clash. But I would like to say may be now I am a mixture of I take what's good from every identity and try to put for that yeah I think so to some extent, but that has limits as well so as I said before, I have very good kiwi friends and we have very good working culture for example but then I don't subscribe to the drinking culture… this is something that most Muslims in the west suffer from. I think because there is a lot of aspects once again of the western culture that don't necessarily fit with the Islamic spiritual way of thinking.

Haithem, 1.5 generation, is another Jordanian participant who arrived in New Zealand at the age of 14 (extract 3b). He positioned himself as in-between Arab and New Zealand cultures, which explains his perception of not seeing himself as a Kiwi. He sees himself as an Arab Muslim, who is from Palestine. He says "**I don't see myself as a Kiwi, but I am definitely a Kiwi** but if someone asked me, where you're from, I wouldn't say from Christchurch New Zealand". From the quote we can see how *Haithem* is in conflict in determining his identity: he says he is definitely a Kiwi even though he doesn't see himself as a Kiwi. *Haithem* seems to illustrate what *Adam* mentioned before, that most people like him have a clash in their identities. I think *Haithem* stated that he is definitely a Kiwi, because he has a NZ passport, studied in NZ, is married to an Arab NZ woman, and works in a NZ company. However, at the same time he still feels that he is Arab, Muslim, and Palestinian. *Haithem*'s identification with and pride in his Arab-Muslim origin match with his proficiency in Arabic particularly in listening and speaking, and at the same time, identification with his Kiwi identity match with his production of the (Ning), raised DRESS, front TRAP and back KIT. The high proficiency in Arabic reported by both Adam and Haithem is compatible with findings by Guardado (2002) and Revis (2015) which suggest that a strong identification with an ethnic culture is likely to lead to language maintenance and appreciating language for identity-related reasons.

Extract 3b: Haithem

> I am first for most I am **Muslim Arab** who has his roots in from **Palestine** that's where my parents are from and just the whole political situation who forced us to move out from Palestine to Jordan and then the the job opportunities the family had has forced us to move from Jordan to UAE and then the Privilege of being able to come here is definitely a bonus. uhm but as an identity I've like I said yeah **definitely a Muslim Arab, Muslim Arab**… uhm a Kiwi I don't, **I don't see myself as a Kiwi , but I am definitely a Kiwi** but if someone asks where you're from , I wouldn't say from Christchurch New Zealand.

On the other hand, *Lona* from the 1.5 generation in extract 11, reported that she is an Arab, a Muslim, and a Middle Eastern and doesn't identify as a New Zealander but, she says that her kids might identify themselves as New Zealanders because they speak like them. *Lona's* identification with and pride in her Arab-Muslim-Middle Eastern identity, match with her

proficiency in Arabic, but at the same time, her poor identification with her Kiwi identity didn't match with her production of the (Ning), raised DRESS, front TRAP and back KIT. *Lona* produced (Ning) all the time, and had a raised DRESS, front TRAP and back KIT VOWELS.

Extract 11: Lona

> **Arab yeah Muslim Middle Eastern** is what I normally say. Yeah so I do identify with not being from New Zealand. no (laugh) fully Arab (laugh) I think with my generation is probably fully Arab but with the kids they uhm especially now they are preschool and they speak, they speak you know just as well as any Kiwi kid they probably will relate more to being westerner than not they are (laugh).

Samera, also from the 2nd generation, in extract 12, identified as an Arab, a Jordanian, a Palestinian and a Muslim. She mentioned that although she has the New Zealand citizenship, this doesn't affect where she is from. She reported that people automatically assume that she is Muslim because she wears Hijab. *Samera's* identification with and pride in her Arab-Muslim-Jordanian and Palestinian identity match with her production of the low DRESS VOWEL . So, it looks to me like Samera's comparatively low realization of DRESS actually fits quite well with her identification as Arab-Muslim rather than New Zealand (see Appendix 3 AND the model 4.7, and graphs 4.52 for DRESS that suggest that for 2nd generation speakers, positive attitudes to Arabic (PC1) are associated with low DRESS). However, *Samera* produced also (Ning), front TRAP and back KIT (NZE-like).

Extract 12: Samera

> Definitely **Arab** yeah. No I think my my identity is that I am **Jordanian** and **Palestinian**. There I do have a New Zealand citizenship but that doesn't affect where I am from. Uhm when people ask me where I am from they automatically assume I am **Muslim** because I wear the (scarf) حجاب.

Finally, *Abeer* from the 1st generation, in extract 10b, reported that she is a Middle Eastern, an Arab, a Jordanian and a Muslim, but if someone asks her where she is from when she is in Australia, she says from New Zealand. Abeer behaves like a typical Arab, speaks Arabic,

teaches her daughters Arabic and is interested in maintaining her Arabic language, identity and culture. *Abeer's* identification with and pride in her Arab-Jordanian-Muslim-Middle Eastern identity, match with her proficiency in Arabic and her production of the (NNing) but didn't match with her production of the vowels. *Abeer's* realizations of the DRESS vowel is high and TRAP vowel is front as appeared in Appendix 3.

Extract 10b: Abeer

> Yeah Middle East, Arabs, Jordan Muslims of course Arab of course. It's depend where I am, if I am going to Australia of course I say I am New Zealander one (laugh) yeah yeah.

To conclude, the results could be explained as a measure of identity orientation towards Arabic or New Zealand. hence the speakers' productions of ING, DRESS, TRAP and KIT and their reported proficiency in Arabic could be seen to reflect the degree to which they identify as Arab-Muslim or New Zealander. Those speakers who identify as Arab-Muslims possibly feel a stronger sense of identity and loyalty towards their heritage country, language and culture, and this is mirrored in their production of a variant which signals that connection, i.e. (NNing) and/or low DRESS. On the other hand, those speakers who said that they are New Zealanders, while still identifying as Arab-Muslims, will also to a certain degree identify with the host culture (New Zealand culture), and this is reflected in their use to a certain degree of a variant which signals that connection, i.e. (Ning) and/or back KIT. However, there are still some speakers who identified only as Arab-Muslims but their production was (Ning) all the time, front TRAP, back KIT and high DRESS, such as *Lona*.

According to these findings, I can confirm that my results to some extent support Za'rour (2018) findings that all younger Arabs that she has spoken to in Wellington expressed a strong connection with their origins but at the same time, they all identified themselves as Kiwis and New Zealanders, whereas their parents categorized themselves as Arab New Zealanders or even just Arabs. However, in my study, some of my younger Jordanian speakers (2nd and 1.5 generations) didn't identify themselves as Kiwis, or New Zealanders but only Arabs and Muslims, such as *Mahmoud, Lona and Samera,* and the majority of old/1st generation speakers identified themselves as Arabs and Muslims with the exception for two speakers who partially identified as New Zealanders.

Chapter 6: Conclusion

6.1 Introduction

This thesis investigated language proficiency, use, attitudes and the acquisition of variation by Jordanians in Christchurch, New Zealand. Specifically, it set out to investigate how proficient Jordanians are in Arabic and English, what attitudes they have towards the two languages, and what domains they use them in. I also examined to what extent Jordanians use patterns of variation found among native speakers of NZE, for the variables ING, intervocalic /t/ and the three NZE short front vowels KIT, DRESS and TRAP.

This thesis combined both quantitative and qualitative methods. The quantitative analysis described, explained and determined general patterns of language use, attitudes, and patterns of variation found among Jordanian speakers in Christchurch, and showed the relationships of the variables involved in the research.

The qualitative analysis, on the other hand, enabled me to understand, interpret and determine the language use interactions and offered a detailed explanation of the multifaceted relationship between language, attitudes and identity, and their correlation with variation for both the ING variable and the vowels (DRESS F1, TRAP F2 and KIT F2) among the participants. This qualitative analysis provided additional insights in this thesis.

This thesis offered an exploration into the role of participants' attitudes and identities in speech production and language change. I linked speakers' attitudinal questionnaire data with their interview data. Jordanians' attitudes towards Arabic language and culture (PC1) and English language and NZ culture (PC2) were collected using questionnaires, and index-scores of their attitudes were calculated using Principal Component Analysis (PCA). After that, speakers' attitude scores were compared with their linguistic production and finally extracts were taken from their interviews to check whether their qualitative results match with their quantitative ones and predict linguistic behavior.

6.2 Research findings

This research aimed to explore language proficiency, use, attitudes and the acquisition of NZE variation among Christchurch Jordanian immigrants employing quantitative and qualitative methods. The first stage of the research focused on LMLS data (e.g., language proficiency, use and attitudes), which I collected from 99 Jordanians in Christchurch using written

questionnaires. In phase two, I collected qualitative data from 20 Jordanians residing in Christchurch who expressed willingness in the questionnaire to participate in follow-up interviews. I used the interview recordings to analyse each speaker's English language production data for ING, intervocalic /t/, and KIT, DRESS and TRAP.

My first research question investigated the issue of "language proficiency and social factors" and their effect on the process of LMLS. The findings for this question confirm the work of some of the researchers reviewed in Chapter 2. The results of my analysis suggest that Jordanians' oral ethnic language proficiency decreased among the younger (e.g., 1.5 and 2nd) generations. And, it appears that those who had been in NZ from 1-10 years were more proficient in their Arabic oral skills than in English, while for those who had been in NZ from 11-20 years and 21-30 years, there appear to be only slight differences in their Arabic and English skills, but at the same time they appear more proficient in English than Arabic. The results also indicate that Jordanians' literacy in their ethnic language decreased among younger generations. The 1.5 and 2nd generation Jordanians reported limited literacy skills in Arabic particularly in writing. Those who had been in the country from 11-20 years also reported lower literacy language proficiency than speakers with 1-10 years and 21-30 years LoR. Speakers with 21-30 years LoR report lower literacy than 1-10yrs LoR, but higher than 11-20yrs LoR. This suggests that there is a gradual decrease in the ethnic language proficiency as we move towards the 1.5 and 2nd generations. At the same time, a gradual shift towards English seems to be taking place among the younger generations. But, because speakers with 11-20yrs LoR reported lower proficiency than speakers with 21-30 years LoR, then that suggest that the trend is more complicated for LoR than for generations. This is because of the distribution of generations in the different LoR groups; most of the speakers in group 11-20yrs are 1.5 and 2nd generations, while group 21-30yrs consists of three speakers, one of them from the 1.5 generation and two from the 1st generation.

The second research question looked at the issue of "language use in different domains and social factors" and their effect on the process of LMLS. The findings for this question confirm the findings in the existing literature reviewed in Chapter 2. My analysis of reported language use patterns indicates that home, friendship and religion are three domains where Arabic language is frequently used by 1st generation Jordanians and this use decreases gradually as you moved towards 1.5 and 2nd generation participants. 1.5 generation speakers used their heritage language beside the majority official language of the host country in all three domains, but the 2nd generation had the tendency to use more English than the other two generations in

(friendship and religion) domains. These participants showed *incomplete shift*: the members of the community maintain some proficiency in the language because they use it in certain circumstances, such as at home, for religion and sometimes among friends. All the participants, regardless of their generation or LoR, reported using only Arabic when praying, and this finding is very important to show the importance of religion in maintaining the Arabic language. The gradual shift towards English in these domains among young generations and speakers with long LoR in New Zealand might suggest that the immigrants were given genuine chances to take part in the social and economic mainstream life in the host society, and this will lead them not to only acquire the host language, but also shift their language use even in the relatively protected domain of the home (Fishman, 1971).

In terms of the third research question, which looked at the issue of "language attitudes and social factors" and their effects on the process of LMLS, the findings for this question confirm the work of some of the researchers reviewed in Chapter 2. Most participants expressed positive attitudes towards both Arabic and English. The participants' attitudes towards Arabic maintenance showed that they consider learning, using and maintaining Arabic as a 'core value' (Smolicz, 1981) that is vital to the survival of the heritage language and continuation of using it. However, 2nd generation speakers appeared to be moving away from Arabic culture and family cohesion, unlike the 1st and 1.5 generations, who showed positive attitudes towards maintaining both of them. 1.5 and 2nd generations disliked the idea of having an Arabic accent in their English and did not report automatically using Arabic in the presence of Arabs in the conversation. At the same time, younger generations (1.5 and 2nd) showed more positive attitudes towards NZ citizenship, culture, identity and towards having a NZ accent in their Arabic.

I concluded that there was a reduction in the heritage language proficiency and use among 1.5 and 2nd generation participants and 11-20 and 21-30 years LoR compared to the 1st generation and 1-10 years LoR. English dominated over Arabic in the friendship domain among 1.5 and 2nd generations and 11-20 years and 21-30 years LoR. Overall, I found that Jordanian people in Christchurch had positive attitudes towards both Arabic and English and I concluded that in order to maintain Arabic for the third generation in Christchurch, efforts should be increased by the family, the community, religious organisations (e.g., the mosques) and by the NZ government.

The qualitative data from the interviews were used to achieve two objectives. First, the interview recordings enabled me to search for the speech sounds under investigation in this

thesis: the two consonants ING & intervocalic /t/, and the three short front NZE vowels KIT, DRESS and TRAP. Second, the interviews also provided me with the opportunity to glean qualitative attitudinal information as supporting evidence for interpreting linguistic changes. I checked whether the information gathered from the interviews correlated with quantitative measures (questionnaire), and examined whether these measures could systematically predict linguistic behaviour. Another advantage of using the interviews was that it allowed me to link the first part (LMLS) with the second part (LVC) by focusing particularly on the attitudes and identity of individual Jordanian speakers. The findings confirmed the influences of attitudes and identities in individuals' speech production, and suggest that attitudes and identities are likely to predict linguistic behaviour.

In section 2.10, I asked two questions about consonants and two questions about vowels. The consonant research questions looked at the influence of the social factors on the realisations of both ING and intervocalic /t/ and asked whether speakers' attitudes predict their linguistic behavior. The vowel research questions examined whether the realisations of DRESS, TRAP, and KIT are conditioned by social factors and lexical frequency, and again asked whether attitudes predict linguistic behavior. In my study, also I expected to find indexical meanings associated with ING variable because it is stable variable in NZE, but not with the intervocalic /t/ and the vowels because they are not stable variables in NZE.

The examination of the ING variable in the thesis showed that the three main variants produced by Jordanians in Christchurch are [ɪŋ], [ɪn] and [ɪŋg], and that social factors had great influence on the production of these variants. For example, females, in-work, 2nd generation, 11-20 years and those who had positive attitudes towards PC2 appeared to use significantly more of the native (Ning) variants [ɪŋ] and [ɪn]. The examination of the intervocalic /t/ also revealed three main variants, CANONICAL, FLAP and GLOTTAL STOPS, whose production was greatly influenced by social factors. For example, 2nd generation speakers tend to use more FLAP and GLOTTAL STOPS than the older generations, and those who were *in-work* appeared to use more FLAP than those who were *not in-work*. Attitudes to English and Arabic did not appear to have a significant effect on the production of the intervocalic /t/.

The examination of the three NZE short front vowels KIT, DRESS and TRAP showed that social factors (generation, gender), attitudes (PC1, PC2) and lexical frequency had a significant influence on the realisation of some vowel formants (DRESS F1, TRAP F1 & F2 and KIT F1 and F2). 1st generation male speakers showed lower DRESS F1 (high vowel) compared to 2nd generation male speakers who showed high DRESS F1 (low vowel). Word frequency effects

were found for KIT F1, TRAP F1 and TRAP F2. The higher the word frequency among female speakers, the lower the production of the KIT vowel (more NZE like), and the higher the word frequency among male and female speakers, the higher the production of TRAP vowel (more NZE-like) and it is higher among males than females, and the higher the word frequency among 1.5 generation the frontier the production of TRAP vowel (more NZE-like), and the lower the word frequency among 2nd generation the frontier the TRAP vowel. It looks like the trends in my data sometimes indicate that NZE realisations are more common with low frequency words in some cases, but with high frequency words in others. The picture for the vowel quadrilaterals for the different generations of males and females in section 4.2.3.4 seems a bit more complicated, because the generations pattern differently for the different vowels. These word frequency results behave differently from Hay et al. (2015), who found evidence for the involvement of lexical frequency in regular sound change and reported for all the three NZE short front vowels, low frequency words led the change.

The results of the word frequency analyses seem complicated and contradict those of Hay et al. (2015). If their low frequency words led the change, this means you will not hear them too much and so wouldn't change. In this case when you come from another country (e.g., Jordan), and your vowels begin to change, the vowels that change very quickly, are the vowels that we hear a lot. And the reason why they are more NZ like in high frequency words, is that they hear them spoken more often by Kiwis and so that makes some change towards NZE.

The examination between the attitudes and the production of the consonants and the vowels showed that attitudes are significant predictors for the realisations of both ING and the vowels. The findings suggest that speakers' production of the (Ning) pattern is influenced by their positive attitudes towards PC2. The quantitative attitudinal scores from the questionnaire correlated positively with the production of the (Ning), and matched with the qualitative results.

Jordanian speakers who produced the (Ning) variants showed positive and instrumental attitudes towards English. For Jordanians, (Ning) appears to carry different social meanings, such as *"education, job, successful communication and good life"* and reflects *Arab-Muslim-New Zealander, Kiwi and American.*

I can conclude that the results of this study suggest that I might be able to predict Jordanian's sociolinguistic behavior if I know about their attitudes towards Arabic and English languages, cultures, and identities or vice versa. My speakers' positive attitudes towards English were clear

in their production of the (Ning) among 2nd generation speakers (more NZE-like), and in their production of the raised DRESS vowel among 1st generation speakers rather than 2nd generation ones (more NZE-like). Moreover, positive attitudes towards Arabic also were clear in the 2nd generation speakers who produced low DRESS vowel (less NZE-like), and in 1.5 generation who produced front TRAP vowel (more NZE-like). In other words, the results showed that the attitudinal index scores were significant predictors of speakers' use of (Ning) variants, DRESS F1, TRAP F2 and KIT F2.

Furthermore, we viewed the variants of ING as existing on a continuum, with the most Arabic-influenced variant at one extreme, and the most NZE-influenced variant at the other. The findings suggested that those speakers who identified as "Arab-Muslims, Muslims, Middle Eastern, Jordanians and Palestinians", exhibited all variants (but to considerably different degrees towards NNing). While those speakers who demonstrated that they are "Arab-Muslim-New Zealanders, Kiwis, and Americans" exhibited also all variants (but to considerably different degrees toward Ning).

One important finding also found for the DRESS vowel is that 2nd generation Jordanians showed positive attitudes toward Arabic language and culture (PC1) and significantly produced low DRESS vowel. Jordanian positive attitudes toward their heritage language might influence their production of DRESS vowel. Another finding was that 1st generation speakers showed high positive attitudes toward English language and culture (PC2), and at the same time they produced high DRESS vowel and this was not an expected result because these speakers came in to New Zealand at an older age. To explain all these findings qualitative interviews were used and extracts were taken from them.

The qualitative attitudinal information from the interviews suggests that the 1.5 and 2nd generation speakers have instrumental attitudes toward English Language (e.g., *education, job, successful communication and good life),* and integrative attitudes toward Arabic (e.g.*my religion, my identity, my tradition, marriage purposes, spirituality, Islam, my culture, my faith, my country and my roots*), and those speakers produced (Ning) variants, high/low DRESS, front/back TRAP and front or back KIT. The reason behind having this instrumental attitude towards English by 1.5 and 2nd generations might be attributed to the purpose of language acquisition across my Jordanian speakers, which was more utilitarian. Their integrative attitudes toward Arabic were clear because Jordanians considered Islamic religion, Arabic identity and Arabic culture their core value, and in order to perform religious duties, it is necessary for a Muslim to develop his/her Arabic language. This result agrees with Gomaa

(2011) who claimed that when language is intertwined with other core values, such as religion, the match between attitudes and language maintenance is even higher. The result supports my hypothesis that the 1st generation speakers will show integrative attitudes towards Arabic and instrumental attitudes towards English. But, at the same time, it goes against my hypothesis that 1.5 and 2nd generations will show integrative attitudes toward English and instrumental attitudes towards Arabic.

The 1.5 generation is described as the lost generation in the literature, and my results are consistent with this. 1.5 generation speakers such as *Adam, Haithem and Ramiz* showed an identity crisis; they were in conflict in determining their identities. *Adam* reported that most of the people in his situation have an identity crisis. This kind of identity crisis was found among 1.5 generation speakers in my study, but not among the 2nd generation speakers such as *Laila, Samera and Mahmoud*, or 1st generation speakers such as *Mai and Manal*. The findings thus suggest that the role attitudes and identities play in LM and LVC could be more complex than I had expected.

6.3 Future research

1- In studies of LMLS, longitudinal studies are valuable though rare because they are time-consuming. It would be interesting, then, if a study could be carried out on a more longitudinal basis to see, for example, whether Jordanians will keep using Arabic at home, in the mosque and between friends in their future life in NZ; whether they will continue to have integrative attitudes towards Arabic and instrumental attitudes towards English; whether they will continue to identify themselves as Arab-Muslims although they live in NZ.

2- Future studies should be able to get benefit from this study when carrying out an assessment of the state of Arabic as a minority language in New Zealand. In addition, this study will hopefully form an initial foundation for a long-term research program that integrates language maintenance and shift with language variation and change.

3- In this conclusion, the suggestion was made that this result (Ning & NNing) was appropriate to the context of L2 speakers and represents a step forward in our understanding of ING use particularly in relation to generation, LoR, occupation, gender and attitudes. The focus in my analysis was more on variation between (Ning) and (NNing), but going by the descriptive analysis in Chapter 4, only 1st generation speakers produced the (NNing) variant, so only the 1st generation had variation between (Ning) and (NNing). Consequently, it would be exciting

in future studies to see if these patterns are replicated in studies including L2 speakers other than Jordanians, or Jordanians in other different cities in New Zealand or worldwide.

4- Because my thesis focused only on language production, it would be good in future research, to add a series of perceptual experiments aimed at identifying social meanings speakers associate with the Jordanian variants (e.g., Ning & NNing) from which we can find the social meanings to be assessed for these variants. In other words, when investigating the effects of attitudes in different generations of the Jordanian migrant community, I argued that the social meaning attached to the (Ning) variant could have changed. However, this claim was based on the production results and evidence from the interviews. In order to confirm the indexical meaning of these linguistic features for different generations of Jordanian speakers, perceptual experiments should be conducted in future studies to examine listeners' reactions to these variants.

6.4 Contributions of the study

1- Throughout this thesis I have demonstrated the value and the way of changing LMLS research from a single-perspective field into a double-perspective one by combining LMLS and LVC together in one combined thesis. This combination adds new insights to our understanding of the status of both the heritage and the dominant languages. I have moreover demonstrated the value of drawing on qualitative interviews to explain the speakers' quantitative results and their linguistic behaviors. The use of both quantitative and qualitative approaches and the integration of attitudes into the analysis offer enormous potential. These should be further refined in future LMLS and LVC research efforts.

2- This thesis provides the Arabic Jordanian community with the most important data regarding the state of their Arabic language in Christchurch.

3- It is hoped that this thesis is a starting point for research projects about language maintenance, shift and language variation within the other Arabic and non-Arabic immigrant communities in New Zealand.

4- Because the data were analysed quantitatively and qualitatively, the results of this study offer a good indication of language maintenance, shift and variation among Jordanians in New Zealand.

5- This study contributes to the literature on LMLS and LVC within an Arabic ethnic minority in NZ. Since Arab minorities are internally different and far from homogenous I hope this study

will motivate other researchers to investigate other Arabic minorities who behave differently, have different identities, different religions and different cultures, such as Iraqis in Wellington and Egyptians in Christchurch.

6.5 Limitations of the study

This research is limited to the Jordanian population in Christchurch, New Zealand. An additional restriction is that I was only able to include members of the Jordanian community in Christchurch who were above 18 years old. The population of the study includes participants from the first, 1.5 and second generations, but due to insufficient numbers, or unwillingness to participate in the study there was only one female speaker from the 1.5 generation compared to 4 males who participated in the study. Moreover, I used questionnaires/ self-report language proficiency, because it wasn't possible for me to develop a performance test and implement it on the whole Jordanian community in Christchurch. Questionnaires are said to lack validity and the likelihood of gathering in accurate data. Participants may have also different interpretations and misunderstand the questions, and questionnaires don't truly capture everything about attitudes and couldn't truly reflect speakers.

Furthermore, the focus on my study was on the non-linguistic constraints that conditioned variations in the production of ING, intervocalic /t/ and the three short front NZE vowels (DRESS, TRAP and KIT), rather than focusing on the linguistic constraints. Additionally, for both theoretical and practical reasons, the participants chosen to participate in the study consisted entirely of Jordanian speakers who resided in Christchurch at the time of the study. Clearly, in order to be able to generalise the findings beyond this particular group, it would be desirable to duplicate the study with a broader range of Jordanians from other cities in NZ.

6.6 Recommendations

In this section, the first three recommendations are written for the Jordanian Arabic community in Christchurch and are recommendations about how to maintain their heritage language. The fourth recommendation is about the importance of combining LMLS and LVC in future studies. The fifth recommendation is about identity and qualitative data. The sixth recommendation expresses my hope that my Jordanian immigrant community, other immigrant communities and

researchers to get benefit from this thesis theoretically and practically. The six recommendations are:

1- Family language policy should be set at home to encourage children to use their heritage language most of the time, particularly with parents, siblings, friends and even watching cartoons. The amount of English use at home should be limited for education purposes.

2- Children should be registered in Arabic classes at schools if they are available in their city or should be sent to the mosques to improve their Arabic skills and reading of the Quran. Reading the Quran facilitates Arabic language maintenance.

3- Children should be able to visit their families in their home countries and get the opportunity to live with their grandparents in order to motivate them to speak the language of heritage and maintain it. In my qualitative data, Samera, who travels every year to Jordan and lives for 2 months with her grandparents, is a good example of this. She has positive attitudes towards Arabic language and culture, a strong Arabic identity and integrative attitudes towards the Arabic language.

4- In this thesis I argued for the importance of combining both LMLS and LVC by focusing on attitudes in order to give a clear picture about the status of both the heritage and the dominant language, as well as the production of the dominant language. The quantitative and qualitative data were sufficient to paint a general picture about the status of the heritage and the dominant language among my speakers. My recommendation is that these should be further improved in future LMLS and LVC research efforts.

5- The identity conflicts experienced is complex especially with 1.5 generation and is good to understand that through the qualitative data. And this is applicable not just to my participants, but may be other migrant communities in New Zealand and in the world.

6- Finally, as a researcher I hope that my research will have a positive impact on my participants. It is my hope that this research has permitted Jordanians to think more about the significance of maintaining their Arabic language, and I hope the NZ government will actively sponsor and engage with individuals and institutions to ensure the continuity of minority languages.

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Appendix One: English and Arabic Questionnaires

Information sheet for Participants

Linguistics Department,

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Language Maintenance, Shift and Variation among Jordanian and Palestinian Arabs of Christchurch/ New Zealand:
A Sociolinguistic Study

I am Mohammed Dagamseh, the researcher of this study, and this research study is a part of my PhD thesis at the University of Canterbury. The purpose of this research is to study the Language maintenance and shift and production of some English consonants, vowels and investigate whether Arabic Jordanian community still use Arabic or they have already shifted to English and investigate their production to some English sounds.

Your involvement in this project will involve first, answering the questionnaire which is designed to collect data on language use in different domains, attitudes, and degree of proficiency in both Arabic and English. Second, if you are selected and you agree to participate in the further study, you may be interviewed by me or my wife at the University of Canterbury, home, park, working place, etc. The interviews will gather some general information about you, your language use, proficiency and your attitudes towards English and Arabic. You will also be asked to read aloud a passage in English language. The interview and the reading aloud will be audio recorded.

There are no known risks to you in the performance of the tasks asked to you in this study. You may receive a copy of the project results by contacting the researcher at the conclusion of the project. Participation is voluntary and you have the right to withdraw at any stage without penalty. If you withdraw, I will remove information relating to you at the end of your session. The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation: your identity will not be made public without your prior consent. To ensure confidentiality, you will only be identified by a subject number, not by name in any published reports. No readers of the reports will be able to identify you. The recording collected from you and information provided on the questionnaire will be securely stored in a password-protected computer, to which only the researcher and the supervisors will have access. The recordings will be kept for a maximum of ten years, and then destroyed.

The project is being carried out as a requirement for the degree of PhD of Arts in Linguistics at the University Canterbury by Mohammed Dagamseh, under the supervision of Dr Kevin Watson and Professor Jeanette King. Dr Watson can be contacted at kevin.watson@canterbury.ac.nz. He will be pleased to discuss any concerns you may have about participation in the project. This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz). If you agree to participate in the study, you are asked to complete the consent form and return it to me.

Thank You!

Questionnaire

My name is Mohammed Dagamseh a PhD candidate in Linguistics at the University of Canterbury. The following questionnaire is a part of my PhD study. The goal of this questionnaire is to help me "explore patterns of language use and attitudes among Arabic Jordanian Community in Christchurch". There are no right or wrong answers to any of these questions. This data will be kept private and used for the purpose of this study only. It is important that you be as honest as and as precise as possible in your responses to help make the study outcomes meaningful and useful. The secrecy of your information is assured and will be kept private and not accessible to the public or to any governmental organizations or officials, for any purpose. No data identifying you will appear anywhere on this form.

Part 1: Demographic factors

Please write or indicate your answer by ticking (X) in the appropriate box.

1- Please, indicate your gender:

Male □ Female □

2- Age group:

18 - 33 □

34 - 49 □

50 and above □

3- Place of birth:

Jordan□ Palestine□ New Zealand□ Other (specify)□

4- If you weren't born here, how old were you when you arrived in NZ?

1– 5 years old□ 6 – 15 years old□ 16 and above□

5- How long have you been here in New Zealand? _____

6- Native language/s:

Arabic□ Arabic & English□

English□ Other (specify) ____

7- your religion:

Islam□ Christian□ Other□ N/A□

Part 2- Language proficiency:

Please indicate the suitable answer for you about your proficiency in Arabic and in English languages.

(1) means poor and (5) means Excellent.

No.	Questions	(1) Poor	(2) Fair	(3) Good	(4) Very Good	(5) Excellent
1	When listening to a conversation in Arabic, I can understand what is said.					
2	I can have a conversation in Arabic.					
3	I can read Arabic.					
4	I can write Arabic.					
5	I can understand New Zealand English.					
6	I can read English.					
7	I can write English.					
8	I can have a conversation in English.					

Part 3- Language Use patterns in different domains:

Please indicate the suitable answer for you about the language you use in these domains. If it is not applicable, please leave it empty. (1) means only Arabic and (5) means only English.

No.	Domains	Questions	(1)	(2)	(3)	(4)	(5)
			Only Arabic	Mostly Arabic	Arabic & English	Mostly English	Only English
1	Home	What language do you use when you talk to your parents at home?					
		What language do you use when you talk to your spouse/partner at home?					
		What language do you use with your siblings at home?					
		If you have children, what language do you use with your child/children at home?					
2	Friend	What language do you use when you speak with your Arabic friends in Christchurch?					
		What language do your Arabic friends use when they speak to you in Christchurch?					
		What language do you use with Arabic friends in the presence of non-Arabic friends?					
		What language do you use when you write letters or electronic messages to Arabic friends in Christchurch?					
3	Mosque/ Church	What language do you use when praying?					
		What language does the Imam use in the place of worship?					
		In what language is the Friday sermon delivered?					
		What language do you use to speak with Arabic people in the Mosque/ church?					

Part 4- Language Attitudes:

Please indicate the suitable answer in your view about your attitude towards Arabic and English. There are no right and wrong answers since many people have different opinions. **(1) means strongly agree and (5) means Strongly Disagree.**

No.	Questions	(1) Strongly agree	(2) Agree	(3) Not Sure	(4) disagree	(5) Strongly disagree
1.	Arabic is a very important language to learn.					
2.	Arabic is the language that I have to maintain for the whole of my life.					
3.	It is necessary for an Arabic person to speak the Arabic language to have an Arabic identity or to be an Arab.					
4.	It is necessary for an Arabic person to speak Arabic language to have an Islamic identity.					
5.	Although I live in New Zealand, I still feel that I am an Arab.					
6.	It is necessary for an Arabic person to read and write Arabic.					
7.	It is important to me that I marry another Arabic person.					
8.	Arabic is dying in my home in Christchurch.	**excluded**				
9.	Arabic is dying in my community in Christchurch.	**excluded**				
10.	It is important for me to maintain my Arabic culture (dress, food, traditions, and behaviours).					
11.	It is important for me to maintain close family ties with my Arabic relatives.					
12.	In order to be successful in my professional life, I have to improve my Arabic.					
13.	If I have children I would like them to learn Arabic.					
14.	Knowing English is more important for getting a job than knowing Arabic in New Zealand.					

15.	It is necessary for an Arabic person in Christchurch to speak English language.					
16.	I am proud to have/ to get New Zealand citizenship/permanent residence.					
17.	It is important to me to understand the New Zealand culture (dress, food, traditions, and behaviours).					
18.	In order to be successful in my professional life, I have to improve my English.	**excluded**				
19.	It is necessary for me to speak NZ English to have a New Zealand identity.					
20.	I respect Arabs (in New Zealand) who only use English.	**excluded**				
21.	I feel happy when people say that I have an Arabic accent when speaking English.					
22.	I feel happy when people say that I have a New Zealand accent when speaking Arabic.					
23.	I am likely to automatically use Arabic when in the company of Arabs.					
24.	I am likely to automatically use English when in the company of English speakers.					

Note:

Please be aware that I will also conduct interviews later at the University of Canterbury (roughly 1 hour) for having a discussion about language attitudes, maintenance and shift. So if you are interested in participating in that as well please give me a call at 02108810673 or send me an email at mohammed.dagamseh@pg.canterbury.ac.nz and you will receive $10 shopping voucher for your participation in the interview. **Thanks for your cooperation**

إستبيان

النسخة العربية

إستبيان دراسة التحول اللغوي بين الاردنيين والفلسطينيين في مدينة كرايست جيرج في نيوزلندا:

أنا طالب الدكتوراه محمد منذر دقامسة من قسم اللغويات في جامعة كانتربري. هذا الإستبيان جزء من دراستي لمشروع الدكتوراة. الهدف من هذا الإستبيان هو لمساعدتي في إكتشاف أنماط أللغة المستخدمة ومشاعركم نحوها بين أفراد الجالية الأردنية وألفلسطينية في مدينة كرايست جيرج. لا يوجد إجابة صحيحة او خاطئه لأي سؤال من هذه اللأسئلة. هذه المعلومات سوف تبقى سرية وتستخدم فقط لأغراض البحث. ولمساعدتي في الحصول على نتائج منطقية ومفيدة من المهم الصدق والدقة في الإجابة. السرية في المعلومات والحفاظ عليها وعدم الوصول اليها من قبل الاخرين والمؤسسات الحكومية والرسمية موجودة. ولا يوجد اي معالومات شخصية من خلالها يمكن تحديد هويتك.

الجزء الاول: المعلومات الديمغرافية

الرجاء وضع علامة × في المكان المناسب

1- الجنس □ ذكر □ انثى

2- العمر □ ١٨- ٣٣ □ ٣٤- ٤٩ □ ٥٠ وما فوق

3- مكان الولادة □ الاردن □ فلسطين □ نيوزلندا □ مكان اخر

4- إذا لم تولد في نيوزلندا، كم كان عمرك عندما قدمت لهذا البلد؟

□ ٠- ٥ سنوات □ ٦- ١٥ □ ١٦ وما فوق

5- منذ متى وأنت هنا في نيوزلندا؟.....

6- أللغة الام □ ألعربية □ الإنجليزية □ ألعربية والإنجليزية □ أخرى

7- الديانة □ الإسلام □ المسيحية □ اخرى □ لا شيء

الجزء الثاني: الكفائه اللغوية

لو سمحت أشر الى مهارتك اللغويه في العربية والإنجليزية. رقم 1 تعني ضعيف ورقم 5 تعني ممتاز

الرقم	السؤال	(1) ضعيف	(2) متوسط	(3) جيد	(4) جيد جدا	(5) ممتاز
1	عند الإستماع لمحادثة باللغة العربية، استطيع ان افهم ماقيل!					
2	استطيع المحادثة باللغة العربية					
3	استطيع القرائة باللغة العربية					
4	استطيع الكتابة باللغة العربية					
5	استطيع فهم اللهجة النيوزلندية للغة الانجليزية					
6	استطيع قراءة اللغة الانجليزية					
7	استطيع كتابة اللغة الانجليزية					
8	استطيع المحادثة باللغة الانجليزية					

الجزء الثالث: أنماط وأماكن إستخدام اللغة

يرجى الإشارة الى انماط اللغة المستخدمة في هذه المواضع، وإذا كان السؤال لاينطبق عليك يرجى ترك الإجابة فارغة. رقم 1 تعني فقط العربية ورقم 5 تعني فقط الإنجليزية.

الرقم	المكان	السؤال	(1) فقط عربي	(2) غالبا العربية	(3) العربيه و الإنجليزيه	(4) غالبا الإنجليزية	(5) فقط الإنجليزية

1	المنزل	ماهي اللغة التي تتحدث بها مع والديك؟					
		ما هي اللغة التي تتحدث بها مع زوجتك، زوجك، شريكك؟					
		ماهي اللغة التي تتحدث بها مع اخوانك؟					
		ماهي اللغة التي تتحدث بها مع اطفالك؟					
2	الأصدقاء	ماهي اللغة التي تتحدث بها مع اصدقائك العرب في كرايست جيرج؟					
		ماهي اللغة التي يتحدث بها اصدقائك العرب معك في كرايست جيرج؟					
		ماهي اللغة التي يتحدث بها اصدقائك العرب معك في وجود اصدقاء غير عرب؟					
		ماهي اللغة التي تستخدمها في ارسال الرسائل الإلكترونيه لاصدقائك العرب في كرايست جيرج؟					
3	المسجد/ الكنيسة	ماهي اللغة التي تستخدمها في الصلاة؟					
		ماهي اللغة التي يستخدمها الإمام/ رجل الدين؟					
		ما هي اللغة التي تلقى بها خطبة الجمعة؟					

		ماهي اللغة التي تستخدمها مع الأشخاص العرب؟					

الجزء الرابع: الإتجاهات والمواقف اللغويه

أشر الى الاجابه المناسبه لك حول موقفك اللغوي من اللغة العربيه والإنجليزية. رقم 1 تعني موافق بشدة ورقم 5 تعني غير موافق بشدة.

الرقم	السؤال	(1) موافق بشدة	(2) موافق	(3) غير متأكد	(4) غير موافق	(5) غير موافق بشدة
1	تعلم اللغة العربية أمر مهم!					
2	اللغة العربية هي اللغة التي يجب ان احافظ عليها طوال عمري!					
3	تكلم العربية امر مهم للإنسان العربي للحفاظ على الهويه العربية!					
4	تكلم العربية امر مهم للإنسان العربي للحفاظ على الهويه الاسلامية!					
5	بالرغم من انني اعيش في نيوزلندا، إلا أنني لازلت اشعر بانني عربي!					
6	تعلم القرائه والكتابه للغة العربيه مهم للانسان العربي!					
7	زواجي من شخص عربي مهم بالنسبة لي!					
8	اللغة العربية تموت في منزلي في كرايست جيرج					

9	اللغة العربية تموت بين افراد مجتمي في كرايست جيرج					
10	المحافظة على الثقافة العربية (اللباس، الطعام، العادات، والسلوكيات) مهم بالنسبة لي!					
11	المحافظة على الروابط العائلية مع الأقارب العرب امر مهم بالنسبة لي!					
12	حتى أكون ناجح في حياة المهنية، يجب ان اطور من لغتي العربية!					
13	أرغب في تعليم اللغة العربية لأطفالي!					
14	معرفة اللغة الإنجليزيه اهم من اللغة العربية في كرايست جيرج للحصول على عمل!					
15	تحدث اللغة الاإنجليزيه في كرايست جيرج مهم لكل شخص عربي!					
16	انا فخور لحصولي او لأني سأحصل على الجنسيه او الإقامة الدائمة النيوزلندية!					
17	فهم الثقافة النيوزلندية (اللباس، الطعام، العادات، والسلوكيات) مهم بالنسبة لي!					
18	حتى أكون ناجح في حياتي المهنية، يجب ان أطور لغتي الإنجليزية!					
19	إنه من المهم اتقان اللهجة النيوزلندية لتكون لدي الهوية النيوزلندية!					
20	أنا احترم العرب المتواجدون في نيوزلندا واللذين يستخدمون فقط اللغة الإنجليزية!					

21	أشعر بالفرح عندما يقول الناس ان لدي لكنه عربية عندما اتكلم الإنجليزية!					
22	أشعر بالفرح عندما يقول الناس ان لدي لكنه نيوزلندية عندما اتكلم العربية!					
23	عندما اكون بصحبة العرب اتكلم العربية بشكل عفوي/ اوتوماتيكي!					
24	عندما اكون بصحبة النيوزلنديين اتكلم الإنجليزية بشكل عفوي/ اوتوماتيكي!					

ملاحظة:

يرجى العلم ايضا بأنني سأقوم بإجراء بعض المقابلات هنا في كرايست جيرج لمناقشة بعض المواضيع المتعلقه باستخدام اللغة العربية والإنجليزية, فعلى الراغبين بالمشاركة التواصل معي على (02108810673) او إرسال رساله الى العنوان التالي:

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المقابلة ستكون مدتها حوالي ساعة وكل مشارك سيحصل على بطاقة شراء بقيمة عشر دولارات شاكرين لكم جهودكم المبذوله.

Appendix Two: Interview Questions

Interviews were conducted in Arabic for the first 3 sections:

Section one: Personal & Language Information

1- Please can you first tell me about yourself and your family?
2- When did you come to New Zealand? Why did you come?
3- How old are you now? Where were you and your children born? Where do you live in Christchurch?
4- How do you and your family feel about the life here? Can you compare life here and in your home country? Do you remember the day you travelled to NZ? Talk about it please.
5- Are you thinking of going back to Jordan/Palestine, or you are settled here? Why?
6- What roles does Arabic have in your life in Christchurch/New Zealand?
7- What roles does English have in your life in Christchurch/New Zealand?

Section Two: Language proficiency

8- How good was your English before you entered New Zealand?
9- Can you read, write, and understand both Arabic and English? Please determine your level, (1- excellent, 2- very good, 3- good, 4- fair, 5- poor). Which language do you prefer to use and why? Which one is easier to use and to express yourself and feelings in?
10- What do you think your children's level of proficiency is in Arabic and English in reading, writing, listening and speaking now and before? (1- excellent, 2- very good, 3- good, 4- fair, 5- poor)

Section Three: Language use in various domains

11- What is the main language spoken at your home? Do you speak any other languages?
12- If you are married, what language do you speak to your children at home? What language do your children speak to you? What language do you speak to your husband/wife?
13- What language do you speak with your Arabic friends and community members?
14- What language do you speak in the mosque with Muslim people?

15- In which language is the Friday's ceremony/speech delivered every week in the mosque?
16- What language do you use when you go shopping, at work, and at university?

Interviews were conducted in English for the fourth and fifth sections:

Section Four: Language Attitudes

17- How do you feel about being able to speak two languages?
18- Which language do you think is more important to you and your children (if you are married), Arabic or English Languages? Why?
19- How do you feel about the environment for maintaining Arabic Language here? (Is it possible or difficult?).
20- Can you think of anything (reasons) that make Arabic survive in your home?
21- If Arabic is no longer used in your home, can you think of the reasons that make it die in your home?
22- Which variety of Arabic you and your family usually use, the Standard or the colloquial and why?
23- What about you and your childrens' friends, do you prefer them to be Arabs, Muslims (the same ethnic group), New Zealanders or it does not really matter?
24- At home, do you watch more English channels or Arabic ones and why?
25- Can you think of anything that Christchurch city (government) could do to improve the opportunities to maintain Arabic in the city?
26- How do you feel about Arabs who still use Arabic and teach it to their children and those who no longer use it and don't teach to their children?
27- How do you feel when people say that you have an Arabic speech style/accent when you speak English?
28- How do you feel when people say that you have a New Zealand speech style/accent when you speak Arabic?
29- Do you like to change your speech style? (to speak English as NZ, and Arabic as Arabs).
30- Do you think your speech style is changing? Why?

Section Five: Identity

31- How can you define "Identity" in general? What is your identity? Is it an Arab or New Zealand or what? Are you in conflict in determining it?

32- Do you feel okay to say that you are an Arab? Or you don't like that? Why?

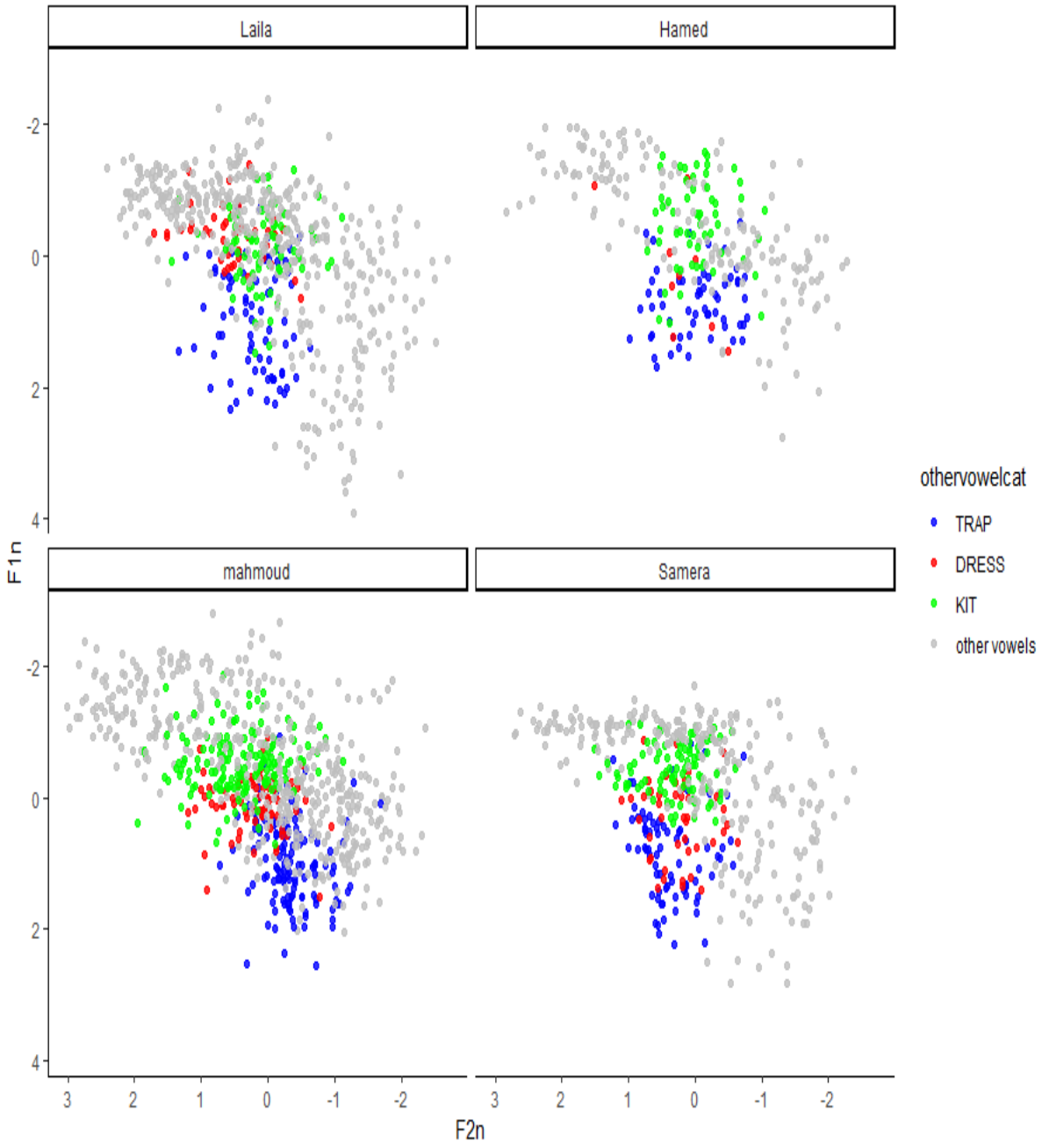
33- Do your parents talk with you and do you talk with your children at home about their Arabic Identity, Arabic culture, Arabic traditions, Arabic food and Arabic dress?

34- Do you feel it is important to know Arabic to be a real member of the Arabic community and to maintain your Arabic identity?

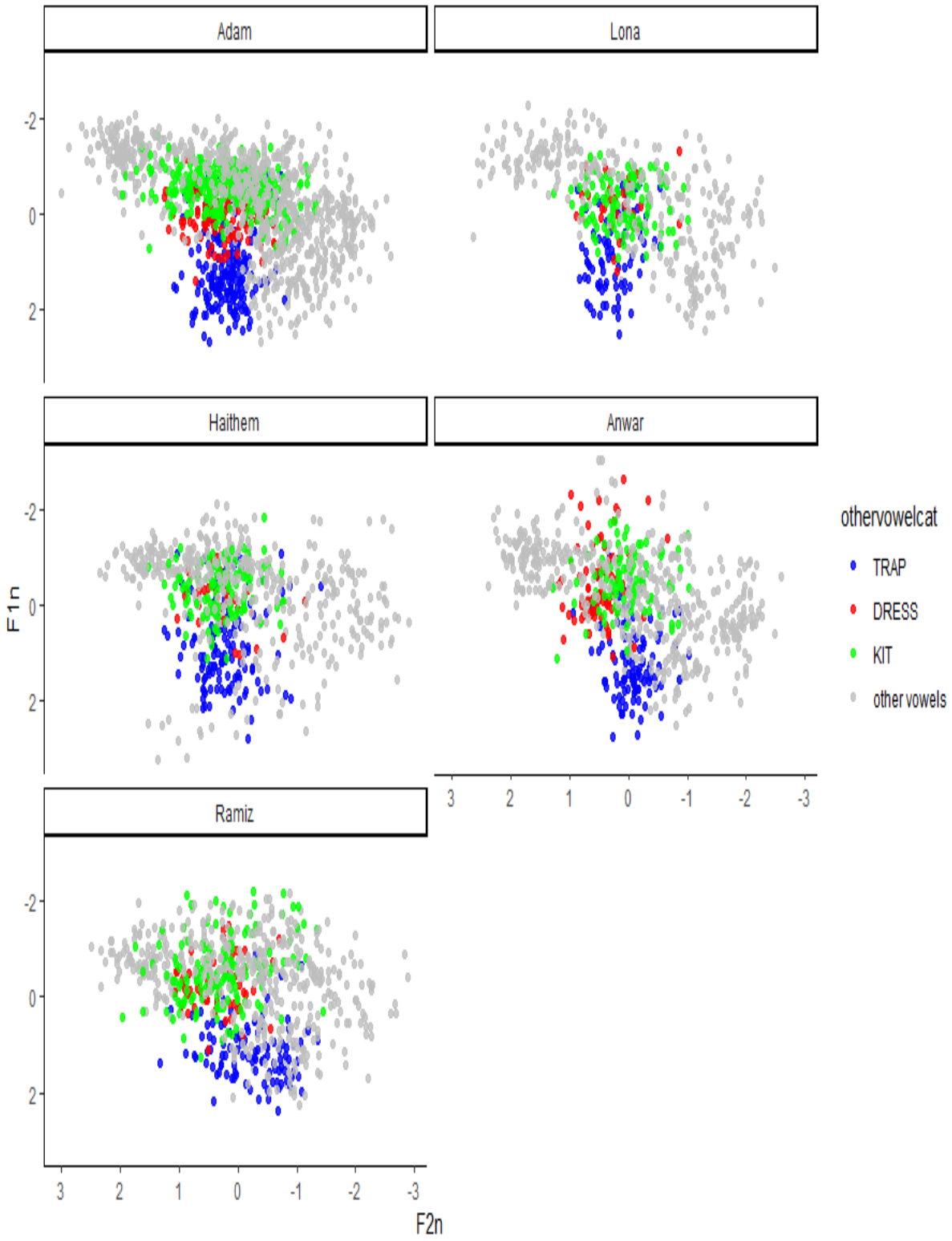
35- Is it important to know Arabic to maintain your Islamic identity

Appendix Three: Short front vowel tokens by speakers

Second generation



1.5 generation



1st generation